

PHD Policy Paper-VI

September 2006

India's Health Sector

Analysis of Social and Economic Burden of HIV/AIDS and Tuberculosis Links

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This paper describes the new challenges and opportunities for the Indian manufacturing industry. Analysis includes the sector contribution to GDP, labour cost advantages, need for labour reform, import duties, domestic indirect taxes, export incentives, export subsidies and the FDI procedures.

The paper concludes with graphic presentation of selected economic indicators.

PHD POLICY PAPER No. V**The North Versus the Rest
Where Do We Stand Today? And Where Will We Go Tomorrow?**

Contrary to the international usage of North as developed countries and South as developing countries (or least developed countries), the Indian perception has the simple explanations are often used to explain this proximity to the centre that granted licenses was having disappeared, at least for manufacturing, this its own. Second, given the inadequacy of internal is less manifest, tend to flourish. While both these land are also important, this monograph will subse too simplistic. As is the East-West dichotomy, with regions to the West of this line performing better than

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INDIA'S HEALTH SECTOR: ANALYSIS OF SOCIAL & ECONOMIC BURDEN OF HIV/AIDS & TUBERCULOSIS LINKS

Chapter - 1

India's Health Sector

India is the fourth largest economy in the world as measured by purchasing power parity (PPP), with a gross domestic product (GDP) of US \$3.63 trillion. When measured in USD exchange-rate terms, it is the twelfth largest in the world, with a GDP of US \$775 billion (2005). India was the second fastest growing major economy in the world, with a GDP growth rate of 8.1% at the end of the first quarter of 2005–2006. This recent economic growth has been a catalyst for India's growth as a Great power and emerging superpower. Industrial growth jumped to 10.8% in May 2005 as double-digit growth in the electricity sector supplemented the already booming capital goods and consumer goods sectors. Exports recorded a healthy 19% growth in April-June 2005.

The GDP grew by 7.4 per cent in the first quarter and 6.6 per cent in the second quarter of the current year, compared with 5.3 per cent and 8.6 per cent in the corresponding quarters of the previous year. The Economic Survey 2005-06 estimates that the GDP will grow at 8.1 per cent. Growth of Gross Domestic Product (GDP) at constant prices in excess of 8.0 per cent has been achieved by the economy in only five years of recorded history, and two out of these five are in the last three years. The health care sectors contribution to GDP and employment is significant. Its revenues account for 5.2 per cent of GDP and it employs over 4 million people, which makes it one of the largest service sectors in the economy.

With a population of over 1 billion growing at the rate of approximately 2 percent every year, India presents immense opportunities for investment in the health care sector. The sheer size of the existing health-care infrastructure in India gives an idea of the growth potential that this sector offers to domestic and foreign investors. With more than 15000 hospitals, 500,000 doctors, 737,000 nurses, 170 medical colleges and 350,000 retail chemist outlets, Indian health-care sector is by far one of the largest in the world.

The Indian health-care delivery market is nearly US \$18.7 billion, growing annually at the rate of 13 to 15 percent. There have been estimates that by the end of 2012, the health-care sector shall be equivalent to more than 8% of the GDP, and the share of private sector shall increase to 75% from the present share of 63%. The strong Indian middle-class acts as a prime driver of growth of health-care facilities in the country. Changing demographic and socio-economic profile of the population in favour of the youth, and changing lifestyle patterns are opening unprecedented demands for preventive and curative health-care facilities.

Over all India's Health Infrastructure*

Health Infrastructure	
Hospitals (public & private)	15000
Doctors	500,000
Nurses	737,000
Medical Colleges (public and private)	170
Retail Chemist Outlets	350,000

Source: ICRA

* Details of Health Infrastructure in the following pages of chapter 1

India: Strengths

- **High quality talent:** Taking advantage of its pool of high-quality scientific talent, international corporations have established large R&D centers in India. All these strengths have resulted in a greater integration of the Indian economy with the world economy. Trade has risen from 21 per cent to 33 per cent of India's GDP in a decade.
- **Expertise in Technology:** Operating through satellite links, Indian programmers are providing IT support to US and European firms in areas ranging from software development and maintenance, back-office operations, data transcription and transmission, telemarketing, and other related areas.
- **Outsourcing:** The US and European firms in the health, insurance and banking sectors are increasingly resorting to the BPO route to cut their costs. In India, unlike in China and the Philippines, BPO is sought after not just on cost considerations, but for better quality as well. As far as BPO in India is concerned, firms go there for cost, and stay there for quality.
- **Rich in natural resources:** India is rich in natural resources like coal, iron ore, water, limestone and granite.
- **Destination for investment:** Increasing number of countries showing interest to invest in India. Another encouraging factor is that India is considered a stable country for investing in by corporates overseas. This is evident from the fact that not a single corporate has approached the World Bank Group's Multilateral Investment Guarantee Agency (Miga) for non-commercial risk cover for making investments into the country. India has displaced US as the second-most favoured destination for foreign direct investment (FDI) in the world after China according to an AT Kearney's FDI Confidence Index. India attracted more than three times foreign investment at US\$ 7.96 billion during the first half of 2005-06 fiscal, as against US\$ 2.38 billion during the corresponding period of 2004-05.
- **Health:** India has substantial achievements to its credit. Longevity has doubled from 32 years in 1947 to 66 years in 2004; Infant Mortality Rate (IMR) has fallen by over 70% points during 1947-1990; malaria has been contained at 20 lakh cases; smallpox and guinea worm have been completely eradicated and leprosy and polio are nearing elimination. In the last five years over five hundred thousand deaths have been averted due to the up scaling of Directly Observed Treatment Short-course (DOTS). Indian doctors are comparable to the best in the world. They are technically proficient, and capable of performing sophisticated procedures and that too at a fraction of the cost available in the West.

India: Weaknesses

- **Poverty:** In the early 1950s, nearly half of India's population was living in poverty. Since then, poverty has been declining; but this has occurred slowly and vast disparities persist between and within India's states. With a gross national product (GNP) per capita of \$390 million in 1997, India continues to have the highest concentration of poverty of any country, with roughly 300 million people (one-third of the population) living below the national poverty line.
- **Malnutrition:** Malnutrition also continues to constrain India's development. More than half of India's children are undernourished, and this affects their physical and mental development. Despite some improvement, India's women remain significantly more malnourished than men. Bias against women and girls is reflected in the demographic ration of 929 females for every 1,000 males. Currently, life expectancy at birth, infant and under-five mortality levels are worse than those of Bangladesh and Sri Lanka. Pakistan eradicated smallpox, guineaworm disease and polio much before India could. Although we account for 16.5% of the global population, we contribute to a fifth of the world's share of diseases: a third of the diarrhoeal diseases, TB, respiratory and other infections and parasitic infestations, and prenatal conditions; a quarter of maternal conditions, a fifth of nutritional deficiencies, diabetes, CVDs, and the second largest number of HIV/AIDS cases after South Africa.¹
- **Health services:** immunization against childhood diseases is a basic building block for public health,

¹ Report of the National Commission on Macroeconomics and Health, 2006, p. 3.

and India's full immunization rates have fallen over the last five years. A recent World Bank study revealed that a typical doctor in a Primary Health Centre in Delhi is less competent than a doctor in Tanzania?²

- Preventable diseases such as leprosy, tuberculosis, cataract blindness, and malaria continue to account for 50 percent of reported illness, and around 470 deaths per 100,000. HIV/AIDS is a newly emerging threat to India's public health; about 3 million people in India may be affected. Based on reviews of available data, it is estimated that by 2015 the number of HIV/AIDS cases would be three times more than the current level, entailing possibly a corresponding increase in the existing prevalence level of TB of about 85 lakh cases. Prenatal and childhood conditions are not expected to decline significantly.
- Lack of capital: Without adequate capital India cannot invest in education, develop its natural resources, or improved roads, ports, telecommunications, electricity generation etc.
- Lack of adequate infrastructure : In key areas of the economy, particularly the power, roads and transportation sectors, investments have failed to keep pace with developments in the overall economy and thus emerged as major impediment to a higher sustainable growth path. Given the enormous resource requirement for improvement in infrastructure, the government will need to promote greater private sector participation. However, the commercialization of infrastructure faces several obstacles, including the absence of an appropriate, long-term framework and policy incentive mechanism for private investment; poor policy co-ordination among different government agencies in implementation of large infrastructure projects; and a shortage of long-term funding.
- Foreign currency risk: The rupee remains unstable against other foreign currencies which creates hindrances in international trade.

India: Top Medical-Tourism Destination in Asia

The Indian health-care industry is attracting a global clientele to emerge as a top medical-tourism destination in Asia by upgrading technology and improving quality. A recent study by. points out that medical tourism could earn India \$2 billion a year by 2012. The domestic \$17-billion-a-year health-care industry could grow by as much as 13 per cent annually in the next six years. Specifically medical tourism is expected to grow at 30 per cent annually.

Most of the medical tourists to India are Indians living in the U.S. and Britain, residents of neighbouring Pakistan, Nepal, Bangladesh, Mauritius and the Maldives, or citizens of African and Middle Eastern countries. The industry can flourish even without Western medical tourists as Afro-Asian people spend as much as \$20 billion a year on health care outside their countries. For example, Nigerians alone spend a \$1 billion a year.

Fiscal Incentive: Recognizing the potential of this sector, the Finance Minister made key concessions to this sector in the budget of 2003-04. Some of the benefits announced are:

- Extension of tax benefits to financial institutions providing long-term capital to private hospitals with 100 beds or more;
- Increase in tax depreciation rate to 40 per cent on life saving medical equipment;
- Reduction of customs and excise duties on life saving equipment and drugs, hearing aids, crutches, wheel chairs, walking frames, tricycles, brailers and artificial limbs;
- Launch of a health insurance scheme by general insurance companies with premium ranging from Re.1 per day for an individual to Rs. 2 per day for a family of seven.

(Source: Ministry of Finance)

² India Development Policy Review, 2006. www.worldbank.org

Market Overview: India has a healthcare system comprising of government and private service providers but the system reaches barely fifty percent of the population because of infrastructure bottlenecks. In terms of international standards on basic healthcare infrastructure and facilities, India lags behind.

Number of Hospitals:	15,097
Number of Beds:	870,161
Hospital Beds:	94 per 100,000
Number of Doctors:	503,900
Doctors:	43 per 10,000
Number of Nurses:	737,000
Health expenditure:	1.7% of GDP
Primary Care:	16% of Government Public Health Expenditure
Secondary & Tertiary Care	84% of Government Public Health Expenditure
Infant Mortality:	80 per 1,000 children
Life Expectancy:	55.5 years
Medical Colleges:	162
Pharmacy Colleges:	143
Chemists:	350,000
Government Primary Health Centres:	23,000

(Source: OPPI, Estimates)

According to a World Health Organisation Report, India needs to add 80,000 hospital beds each year for the next five years to meet the demands of its population.

Market Structure: India's healthcare industry is estimated at Rs. 1000 billion. Of this, pharmaceuticals account for Rs. 200 billion. Rs. 185 billion is spent on healthcare annually. On average, Indian families spend Rs 560 per month on healthcare which is 11 per cent of the household income, showing that they are willing to spend provided the service they get is of high standard. According to The World Health Report 2000, India's health expenditure is 5.2 per cent of its GDP. Public and private health expenditure is 13 per cent and 87 per cent respectively (Source: UK Trade and Investment).

India's population of a billion people represents a big opportunity with the middle income group consisting of 250 million. The proportion of households in the middle and higher income-group has increased from 14 per cent in 1990 to 20 per cent in 1996. People are also spending more on healthcare - a family of four spends between Rs. 8,000 and Rs. 12,000 a year on healthcare compared to just Rs. 2,000 in the late 1980s.

Cost Differential: A look at the cost structure of some major procedures highlights the advantages that India has in this segment. An open-heart surgery can cost up to \$70,000 in Britain and \$150,000 in the U.S.; in India it is between \$3,000 and \$10,000. Knee surgery costs \$7,700 in India; in Britain it costs \$16,950. Dental, eye and cosmetic surgeries cost three to four times in western economies (Source: Asia Times, July 19 2003).

Thailand already has an edge in cosmetic surgery and the country's hospitals are expanding their offerings to include procedures like hip and knee replacement. A comparable bypass operation in a government hospital in Malaysia costs around 600,000 rupees, while in India it costs 90,000 rupees. This differential in the pricing structure highlights the comparative advantage that the India health care system enjoys vis-à-vis even the developing nations.

Medical Hardware: The Indian medical hardware market of equipment and devices is estimated at Rs 65.32 billion which is almost double the market size in 1993. This market is growing at 12 per cent per annum. On a segment-wise basis, the following are the 2001 estimates:

Segment	Market Size
General Surgery	Rs. 30.64 billion
Imaging	Rs. 11.09 billion
Clinical Instrument	Rs. 5.70 billion
Critical Care	Rs. 3.22 billion
Cardiac Surgery	Rs. 2.62 billion
Self Care	Rs. 3.0 billion
Ophthalmology	Rs. 2.39 billion
Urology	Rs. 1.47 billion
Others	Rs. 5.15 billion

Source: Frost & Sullivan

Health Insurance: Less than 10% of the Indian population is covered by some form of health insurance. It is expected that the major international players will establish networks of affiliated hospitals and seek direct involvement in the development of new facilities. The voluntary health insurance market is expected to grow fast with estimates of Rs. 130 billion by 2005. Privatisation of insurance will extrapolate into a new healthcare delivery system in India. Currently, only 2 million people – which is 0.2 per cent of the total population – are covered under Mediclaim with estimates that there are 315 million potentially insurable lives in the country. Insurance companies estimate that with health insurance coming in, 6 per cent of household income will be spent on healthcare up from the current 2 per cent.

The Industry is now expected to undergo a drastic change with the advent of Managed Care Systems in the form of Preferred Provider Organisations – which will metamorphose in to Health Maintenance Organisations in the long run. It is estimated that the US\$761 million health insurance business to swell to US\$4 billion by 2005 (Source: UK Trade and Investment).

India has made significant progress in the past several decades in improving the health and well-being of its people. Over the past 40 years, life expectancy has risen by 17 years to 61 years, and infant mortality has fallen by more than two-thirds to 74 deaths per 1,000 live births. Despite these significant strides, the country continues to bear a heavy burden of both communicable and non-communicable diseases. Furthermore, India is experiencing a slow epidemiological evolution from infectious and parasitic diseases to non-communicable diseases. Also, the emergence of AIDS has begun to affect national and regional epidemiological profiles and priorities.

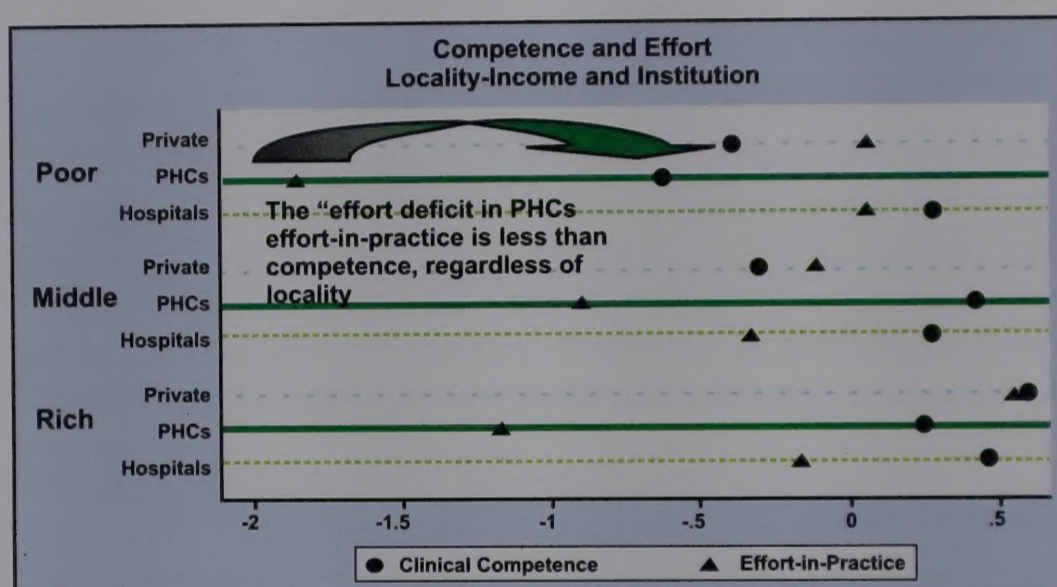
The government has sought to help states to improve their health policy environment and access to quality of services, with particular attention to building institutional capacity, the first-referral level, and services for the poor. This will help in establishing sustainable health systems that focus on cost-effective programs, and also make sufficient use of the private sector. The priority will be to develop effective and sustainable health systems that can meet the dual demands posed by the growth in non-communicable diseases and peoples' needs for better quality and higher levels of health care. Government sector that provides publicly financed and managed curative and preventive health services from primary to tertiary level, throughout the country and free of cost to the consumer (these account for about 18% of the overall health spending and 0.9% of the GDP).

The private sector plays a dominant role in the provision of individual curative care through ambulatory services and accounts for about 82% of the overall health expenditure and 4.2% of the GDP. Nationwide health care utilization rates show that private health services are directed mainly at providing primary health care and financed from private resources, which could place a disproportionate burden on the poor. Most of these costs are out of pocket costs, State governments

contribute 15.2%, central government 5.2, and third-party insurance and employers put in 3.3% of the total.³ Private sector has 70% specialists and 85% of technology in their facilities. It account for 49% beds and occupancy ratio of 44%, where as occupancy rate in public sector is 62%. More than 75% of service delivery for dental health, mental health, orthopedics, vascular and cancer diseases and about 40% of communicable diseases and deliveries are provided by the private sector.

The provision of health care by the public sector is a responsibility shared by state, central and local governments, although it is effectively a state responsibility in terms of service delivery. State and local governments incur about three-quarters and the center about one-quarter of public spending on health. The responsibility for health is at three levels. First, health is primarily a state responsibility. Second, the center is responsible for health services in union territories without a legislature and is also responsible for developing and monitoring national standards and regulations, linking the states with funding agencies, and sponsoring numerous schemes for implementation by state governments. Third, both the center and the states have a joint responsibility for programmes listed under the concurrent list. Goals and strategies for the public sector in health care are established through a consultative process involving all levels of government through the Central Council for Health and Family Welfare.

The “effort deficit”—the gaps between what medical practitioners knew to do and what they actually did—is present in all public facilities, and enormous in PHCs in Delhi



Source: Das and Hammer (2004)

The delivery of service conditions in the public sector is not so improving in accordance with the improvement in the economy. A detailed survey of the knowledge of medical practitioners for treating five common conditions in Delhi found that the typical quality doctor in a public primary health center has a *more than 50-50* chance of recommending a *harmful* treatment. In these facilities medical practice has yet to reach the “do no harm” standard.⁴ The observation of clinical competence assessed time spent with patients, number of diagnostic questions asked, and number of physical exams (e.g. taking a temperature, blood pressure). For the typical PHC the answer is: *two*, *one*, and *zero*—the doctor spent *two* minutes, asked on average *one* question, and typically carried out *no* physical exams.

Health Infrastructure

The health infrastructure in India is spread over the different systems of medicine such as allopathic, ayurveda, siddha, Tibetan medicine, unani and homoeopathy, and can be categorized as follows:

- a) Physical infrastructure
- b) Human resources

³ Ramesh Bhat and Nishant Jain, “Analysis of Public and Private Healthcare Expenditures,” *Economic and Political Weekly*, vol. XLI, no.1, 2006, pp. 57-68.

⁴ *India Development Policy Review*, 2006.

Physical Infrastructure

The physical infrastructure consists of health facilities in the public sector and those provided by the private sector. India spends Rs. 103,000 crore, or 5.2% of its GDP on health care. The average number of beds per hospital in India is 35 and when compare to China, it is 50 and in Brazil it is 75 and Korea it is 175. There is a huge mismatch in spending and infrastructure.

In India, public expenditure contributes a significantly small percentage in healthcare expenditure. Public health services consist of a network of sub-centres, primary health centres (PHC), community health centres (CHC) and district hospitals as shown below:

- 140,000 sub-centres managed by two multipurpose health workers;
- 23,000 primary health centres (PHCs) with a medical officer, 14 staff and 4-6 patient beds, with each PHC acting as a referral unit for six sub-centres. (With about 600,000 villages having 23,000 PHCs, the average number of villages covered by a PHC is a little more than 26);
- 3,000 community health centres (CHCs) with four medical specialists, 21 staff, 30 beds and basic surgical and lab facilities, with each CHC serving as a referral unit for four PHCs;
- 550 district hospitals at the sub-divisional level.

The infrastructure in the private sector provides at least 80 per cent of health services in the country and can be classified as follows:

- Private dispensaries
- Private hospitals
- Charity hospitals, including medical centres managed by NGOs
- Corporate hospitals

Despite an extensive public health care infrastructure, the private sector now dominates the market.

India's Medical Infrastructure

Hospitals	5,097
Hospital Beds	1,500,000
Doctors	6,33,108
Nurses	900,000
Medical Colleges	229

At the current utilization rates, 750,000 extra beds will be needed to meet the increased demand for inpatient treatment in 2012. It means that we would need 1.9 beds per '000 population.

Human Resources

As regards human infrastructure, there were about 6,33,108 allopathic doctors and 6,91,470 practitioners under Ayurveda, Yoga, Unani, Siddha and Homeopathy (AYUSH) systems of medicine in 2002.⁵ This gives a doctor to population ratio of 1 for 1676 persons in India. This is further decreased in rural and tribal areas. In addition, the nursing staff has been estimated at 566,000. In other words, India has an acute shortage of doctors, 0.59 per 1000

⁵ Ibid, page. 63.

population compared to 1.5 in other low income countries and even 4.3 in China, Brazil, Thailand, South Africa and Korea. This is 7.4 in most of the developed countries. We are much below the world average of 1.5 doctors per 1000 population. The availability of nurses is nearly 0.9 per 1000 population in 2001. At the same time the world average is 3.3. The quality of service is also very poor in rural areas. It was estimated that registered allopathic medical practitioners are only 32% and unregistered practitioners are 30% and registered ISM physicians are 38%. There is a requirement of increased number of allopathic physicians to reach the ratio of 1 per '000 population and also the number of nurses and other healthcare manpower.

Health providers are trained at 229 medical colleges and have 255,82 seats at graduate level and 3,000 post-graduates every year. The Central Council of Research in Ayurveda and Siddha has 80 research centers.

At least we need 1 allopathic physician per '000 to meet the future demands. This target requires 1,200,000 practitioners by 2012. To achieve this target we have to double the intake of students in medical colleges. There are about 320,000 unqualified practitioner's needs to be trained. The projections for the requirement of nurses by 2012 are 1,900,000 and the present number of registered nurses is only 900,000. To meet the requirement, the number of students in the nursing schools will have to triple.

Human Resources for Health (Allopathy) in Selected States

State	Population	No. of Registered Doctors	No. of Nurses	No. of ANMs	Total Human Resources	Human Resources per1000 population- Norm 2.25/1000
States Above Norm of 2.25/1000 population						
Andhra Pradesh	78,892,000	48402	84,306	94395	227103	2.88
Delhi & Punjab	40,583,000	62107	40568	16281	118956	2.93
Gujarat	51,057,000	36521	85406	35780	157707	3.09
Karnataka	54,692,000	65789	48,458	46817	161064	2.94
Kerala	33,365,000	32412	71,589	27612	131613	3.94
Orissa	37,091,000	14712	45,830	30077	90619	2.44
Tamil Nadu	63,755,000	71157	155,647	52,341	279145	4.38
State Below Norm of 2.25/1000 population						
Assam	27,520,000	15723	9,659	12187	37569	1.37
Bihar & Jharkhand	107,362,000	35110	8883	75501	51494	0.48
Madhya Pradesh & Chhattisgarh	86,681,000	29003	92158	25344	146505	0.48
Haryana	21000000	1285	15,821	13112	30218	1.44
Maharashtra	94,839,000	90855	79,004	24910	194769	2.05
Rajasthan	57,463,000	22506	31,063	21932	75501	1.31
West Bengal	83,079,000	52274	44,035	55855	152164	1.83
TOTAL	837,379,000	577856	504,628	464144	1854427	2.21

Source: Medical Council of India, 2004; Indian Nursing Council, 1994, 2001, 2002

Health Administration

Health administration in India is governed by the Ministry of Health and Family Welfare (MOHFW), which has 3 departments:

- Department of Health.
- Department of Family Welfare.
- Department of AYUSH (Ayurveda, Unani, Siddha and Homoeopathy)

The budgetary outlay for health services has increased at over 15 per cent per year. Many state governments have sought external funding assistance for upgrading health infrastructure.

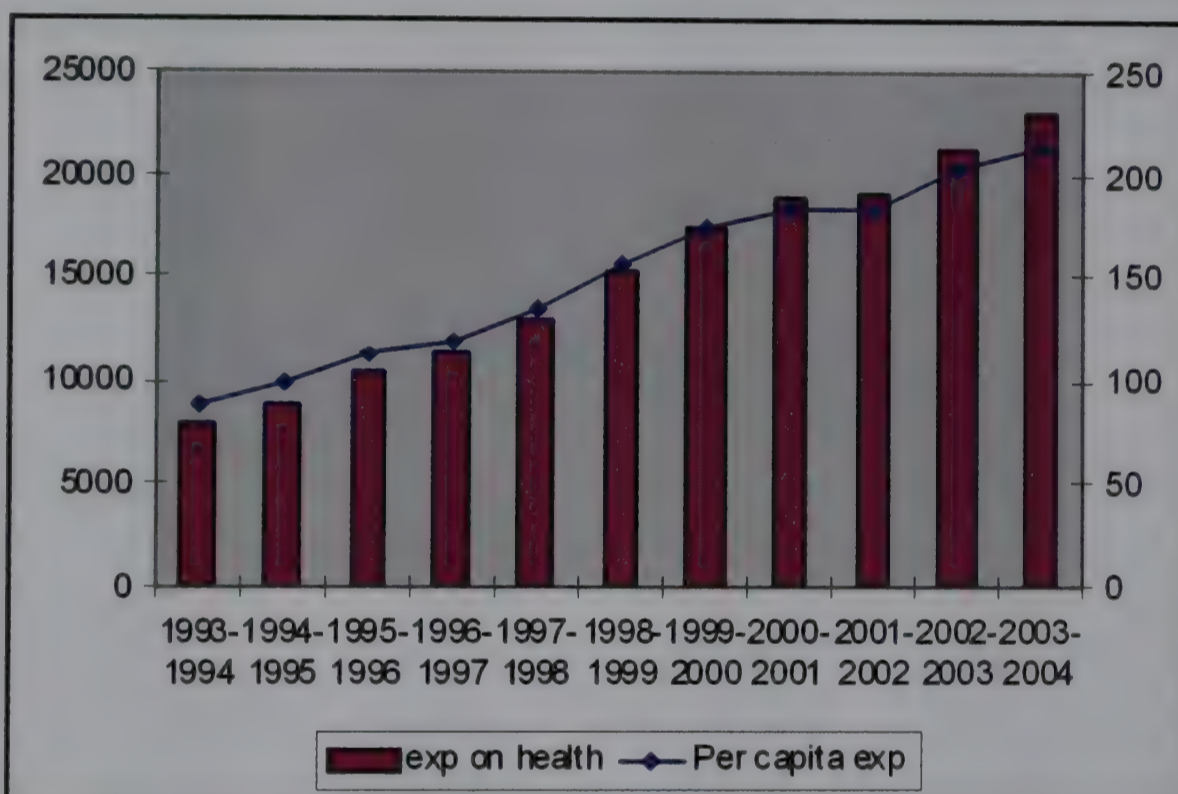
Chapter - 2

Expenditure and Growth in Health Sector

The fifth and sixth five-year plans (FY 1974-78 and FY 1980-84, respectively) included programs to assist delivery of preventive medicine and improve the health status of the rural population. Supplemental nutrition programs and increasing the supply of safe drinking water were high priorities. The sixth plan aimed at training more community health workers and increasing efforts to control communicable diseases. There were also efforts to improve regional imbalances in the distribution of health care resources.

The Seventh Five-Year Plan (FY 1985-89) budgeted Rs33.9 billion for health, an amount roughly double the outlay of the sixth plan. Health spending as a portion of total plan outlays, however, had declined over the years since the first plan in 1951, from a high of 3.3 percent of the total plan spending in FY 1951-55 to 1.9 percent of the total for the seventh plan. Mid-way through the Eighth Five-Year Plan (FY 1992-96), however, health and family welfare was budgeted at Rs 20 billion, or 4.3 percent of the total plan spending for FY 1994, with an additional Rs3.6 billion in the non plan budget.

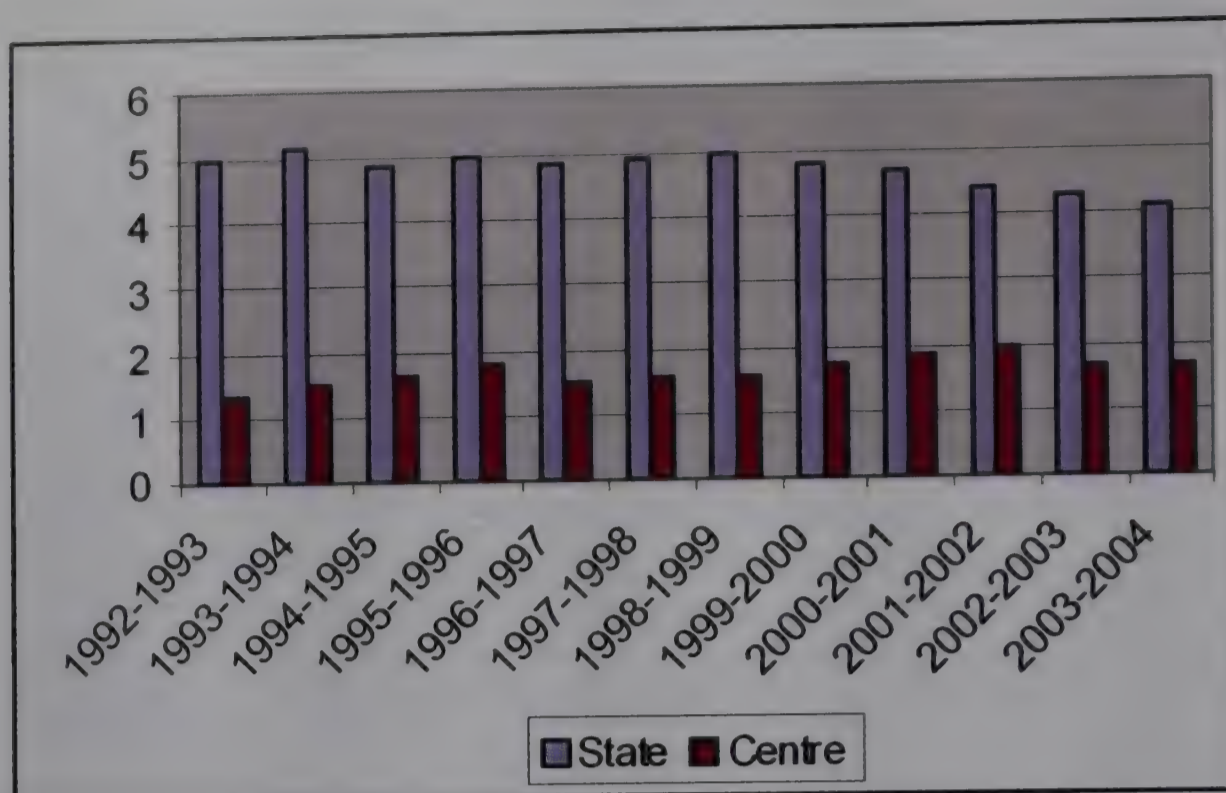
Government Expenditure and Per Capita Expenditure on Health



The government expenditure on health has increased from 7938.36 crore in 1993-94 to 23028.3 crore in 2003-04. This shows the importance given to the health sector by the government. The per capita expenditure has increased from 89 in 1993-94 to 214 in 2003-04. However, there is a sharp reduction in capital investment in public hospitals from 25% of the budget in 1991 to less than 60% in 2001. Gross under funding of National Health Programmes (NHP) which require a minimum of Rs 11,210 crore against which the Centre and States spent an estimated Rs 5563 crores (2001-2002) resulting in the suboptimal functioning of the delivery system and huge out of pocket expenditures on services 'guaranteed' under the NHP. India is one of the five countries in the world where public spending is lesser than 0.9% of GDP and one of the fifteen where households account for more than 80% of total health spending. The Common Minimum Programme proposes to raise the public health spending to 2%-3% of GDP.

Statewide data analysis shows that public health expenditure of all states except Assam went down in the period 1990-96 but increased during the period 1996-2002 for all states except Uttar Pradesh and Assam. When compare to per capita health expenditure as per cent of per capita gross state domestic product (GSDP), in almost all states, public health expenditure as per cent of GSDP has not increased much during the past decade (Ramesh and Nishant, 2006).

Central and State Government Health Expenditure (As a percentage of total expenditure)



The state government expenditure as a percentage of total expenditure has decreased from 4.96 in 1992-93 to 4.12 in 2003-04 whereas central government expenditure on health as a percentage of total expenditure has increased from 1.31 in 1992-93 to 1.69 in 2003-04. However, the Indian public health expenditure is only 17.9% of the total and it is lower when compared to other Asian countries.

Public Expenditure on Health as Percentage of Total Expenditure, 2001

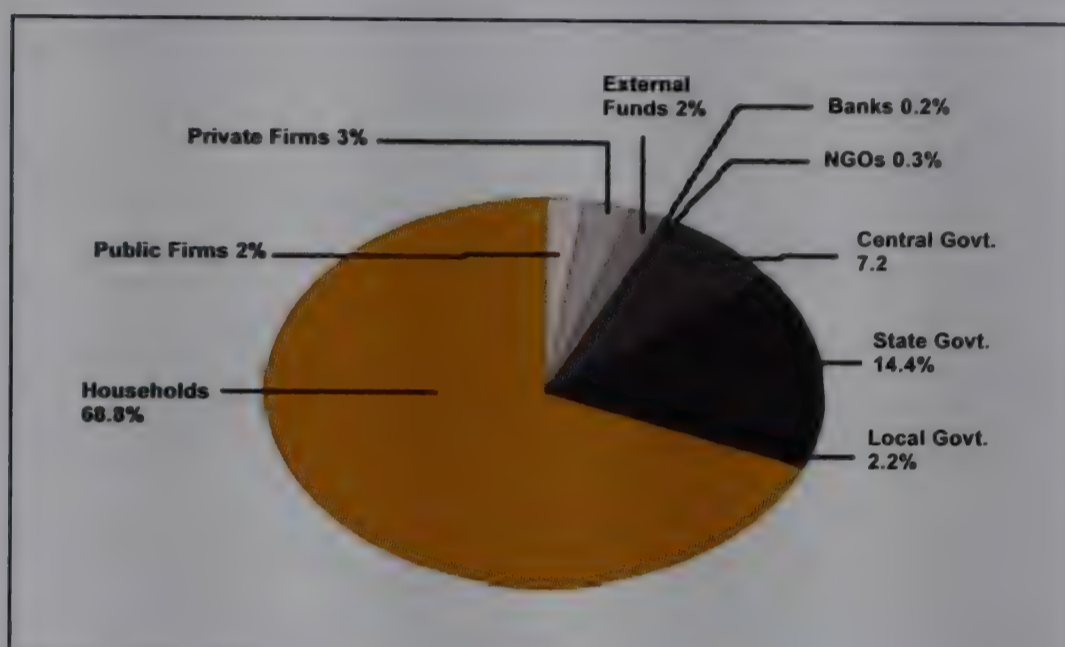
Country	Percentage
Bhutan	90.6
Maldives	83.5
Korea	73.4
Thailand	57.1
Sri Lanka	48.9
Bangladesh	44.2
Nepal	29.7
Indonesia	25.1
India	17.9
Myanmar	17.8

Private expenditure on health care as per cent of per capita income has almost doubled since 1961. Table shows that average per capita private health care expenditure as per cent of per capita income in different periods since 1961. The private expenditure increased from 2.71 during 1961-70 to 5.53 during 2001-03.

Private Health Expenditure as Per Cent of Per Capita Income in Different Periods

Period	Average (in per cent)
1961 to 1970	2.71
1971 to 1980	3.27
1981 to 1990	3.72
1991 to 2000	3.26
2001 to 2003	5.53

Share of Entities in Total Health Spending



Total Spending: Rs. 108,732 crore out of a GDP of Rs. 22,71,084 for 2001-02.

In conclusion, it is clear that the need of the hour is for reorganizing and increasing investment in health and related sectors. Current government expenditures could be made more efficient by restructuring the financing and organizational systems to get over the pre-transition diseases and also to develop the capacity to cope with the huge epidemic of non-communicable diseases which are more expensive to treat; and address the key barriers-human resources and institutional capacity to achieve higher levels of access, efficiency and quality. Analysis suggests that public healthcare expenditures of state governments have coming down every year. The present level of spending is around 0.43 per cent of GSDP to health and medical care. In such a situation, the goal of spending 2 to 3 per cent of GDP on health looks ambitious.

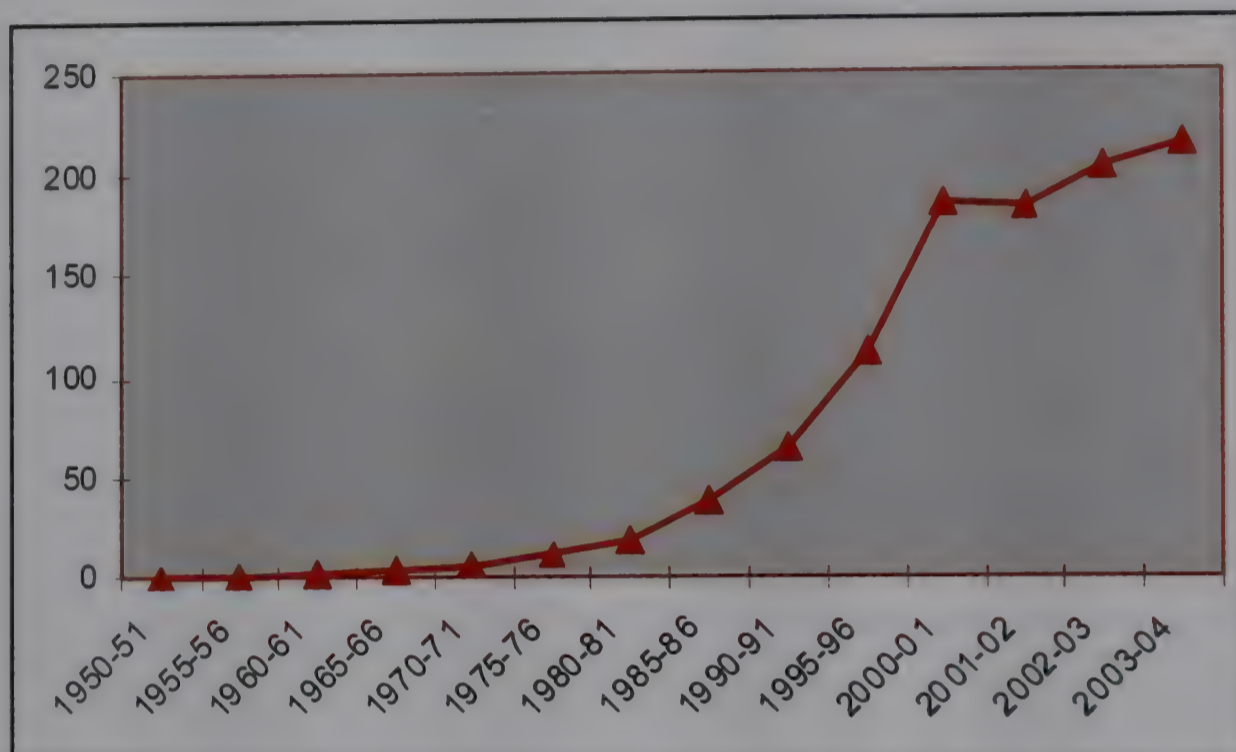
Growth in the Health Care Sector in India

Indian healthcare sector is growing rapidly in the recent past. This change in the trend began when the developed countries realized that it could get quality service less than half the price in their own countries. Healthcare has emerged as one of the largest service sectors in India. In 2004, national healthcare spending equalled about 5.2 per cent of nominal GDP, or about US\$ 34.9 billion. Healthcare spending in India is expected to rise by 12 per cent per annum through 2005-09 (in rupee terms) and scale up to about 5.5 per cent of GDP, or US\$ 60.9 billion, by 2009. Other estimates suggest that by 2012, healthcare spending could contribute 8 per cent of GDP and employ around 9 million (million) people. Rich households (the top 8 per cent) paid US\$ 578 per treatment and hospitalisation in 2004, three times the overall average of US\$ 191.

Presently there are more than half a million doctors employed in 15,097 hospitals. Additionally there are 0.75 million nurses, who look after more than 870,000 hospital beds. During the previous decade, the number of doctors has increased by 36.6 per cent. An estimated 30 per cent of medical practitioners hold specialist qualifications.

To reach even half of China's current beds per 1,000 populations over the next 10 years, India would need an additional 920,000 beds entailing an investment of between US\$ 32 billion and US\$ 49.1 billion, assuming that 20 per cent of those beds would be in the tertiary-care segment. The government is likely to meet only 15-20 per cent investment in hospital beds, assuming it increases expenditures by 6-7 per cent from the current base. Assuming 10-15 per cent commitment from international donors, there would be a shortfall of 70 per cent, which could be funded by private companies. Over the next 10 years, it is estimated that an additional 818,000 physicians would be needed - which translates into a need for more medical schools. Investment is also needed in medical equipment and training facilities for professionals such as nurses and pharmacists.

Trends in Per capita Public Expenditure on Health (Rs)



Source: RBI Report on Currency and Finance

The sector is expected to post its highest growth in 2007 with 42% rise in its earnings. The number of patients visiting India for medical treatment has risen from 10,000 in 2000 to about 100,000 in 2005. With an annual growth rate of 30 per cent, India is already inching closer to Singapore, an established medicare hub that attracts 150,000 medical tourists a year. The healthcare industry employs over four million people, making it one of the largest service sectors in the economy.

The McKinsey study⁶ reveals that:

- At the current pace of growth, medical tourism, currently pegged at US\$ 350 million, has the potential to grow into a US\$ 2 billion industry by 2012.
- Healthcare spending in the country will double over the next 10 years. Private healthcare will form a large chunk of this spending, rising from Rs 690 billion (US\$ 14.8 billion) to Rs 1,560 billion (US\$ 33.6 billion) in 2012. This figure could rise by an additional Rs 390 billion (US\$ 8.4 billion) if health insurance cover is available to the rich and the middle class.
- The voluntary health insurance market, which is estimated at Rs 4 billion (US\$ 86.3 million) currently, is growing fast. Industry estimates put the figure at Rs 130 billion (US\$ 2.8 billion) by 2005.
- With the expected increase in the pharmaceutical market, the total healthcare market could rise from Rs 1,030 billion (US\$ 22.2 billion) currently (5.2 per cent of GDP) to Rs 2,320 billion (US\$ 50 billion)-Rs 3,200 billion (US\$ 69 billion) (6.2-8.5 per cent of GDP) by 2012.

⁶ A Report by CII-McKinsey & Company, Health Care in India: The Road Ahead, 2002. 16.08.2006

Health Projections

Particulars	2004	2005	2006	2007	2008	2009
Life expectancy, average (years)	64	64.3	64.7	65.1	65.4	65.8
Health care spending (Rs bn)	1,582	1,763	1,967	2,216	2,463	2,771
Health care spending (US\$ bn)	34.9	40.4	45.7	52.1	56	60.9
Health care spending (% of GDP)	5.2	5.3	5.3	5.4	5.4	5.5
Health care spending (US\$ per head)	32	37	41	46	49	53

Sources: US Census Bureau; Economist Intelligence Unit.

Health care system in the country is ranked as one of the best in the world. The National Accreditation Board for Hospitals and Healthcare Providers (NABH) set up by the Ministry of Health under the aegis of the Quality Council of India is currently finalising the guidelines for accreditation of hospitals and other healthcare service providers.

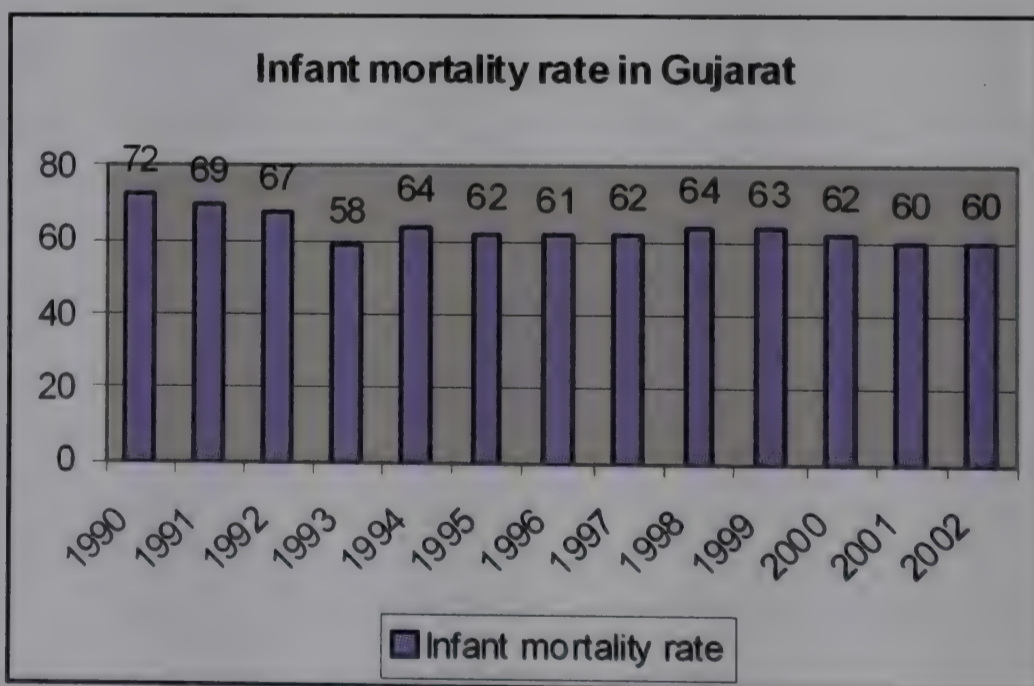
Chapter - 3

Health Sector of Various States

Gujarat

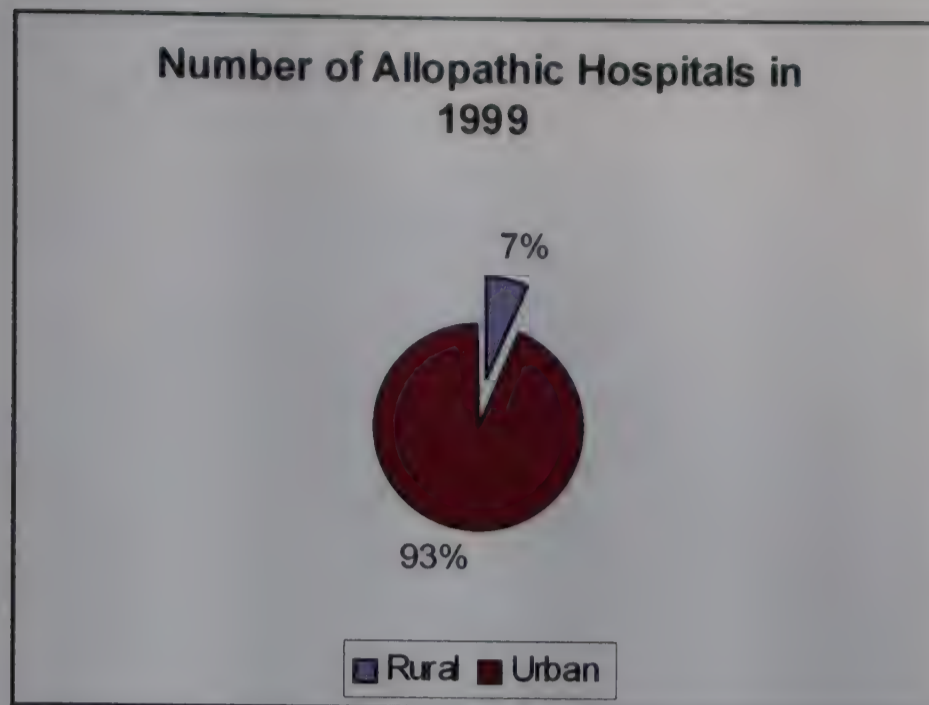
- **Entrusting Rural Health, Medical Services & Management of PHC to a Voluntary Organisation:** Government decided to handover PHC's to private and voluntary organizations as PHC's do not have adequate facilities to provide health services.
- **Mapping of expertise available for training:** With a view to build capacities, health training is planned with the involvement of various institutes of expertise, from both the public and private sector. As part of this initiative, mapping of the expertise available for training in private and non-governmental organizational sectors and to involve them in training (e.g. RCH training, training related to HIV/AIDS) is proposed.
- **Appointment of honoraries & part-time specialists from the private sector:** The Government has encouraged private practitioners to provide services in the public sector under "Samaydan scheme". This scheme aims to ease the problem of vacancies of specialists in health and medical services. As part of this scheme, honorary and part-time specialists are being appointed. So far, about 125 such specialists have been appointed.
- **Urban Health Care Project:** In face of lack of adequate health infrastructure in urban areas, rapidly increasing urban population, absence of basic services like sanitation, drainage, water supply in urban slums, appalling health status and the rapidly increasing costs of health care, the government of Gujarat, has initiated an urban health care project. This project aims to provide primary health care to urban slum population under the public private partnership through community based health volunteers in urban areas.

Infant Mortality Rate in Gujarat



The infant mortality rate in Gujarat has come down from 72 in 1990 to 60 in 2002 due to improvements in medical facilities. In 2004 the infant mortality rate in rural areas was 62 and in urban areas it was 32. From 1996 to 2001 the life expectancy of males was 61.5 and that of females was 62.8. The life expectancy of males was increased to 63.1 and that of females to 64.1 from 2001 to 2006.

Number of Allopathic Hospitals

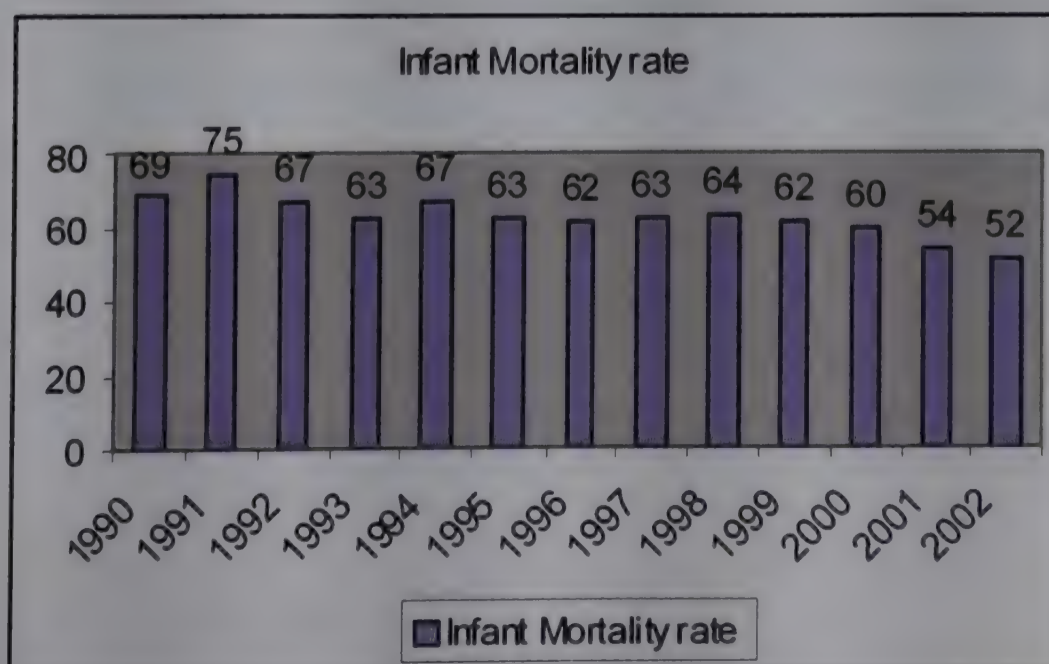


The total number of allopathic hospitals in Gujarat in the year 1999 were 2528. Out of which 2349 (approx. 93%) were in urban areas and 179 (approx. 7%) were in rural areas.

Himachal Pradesh

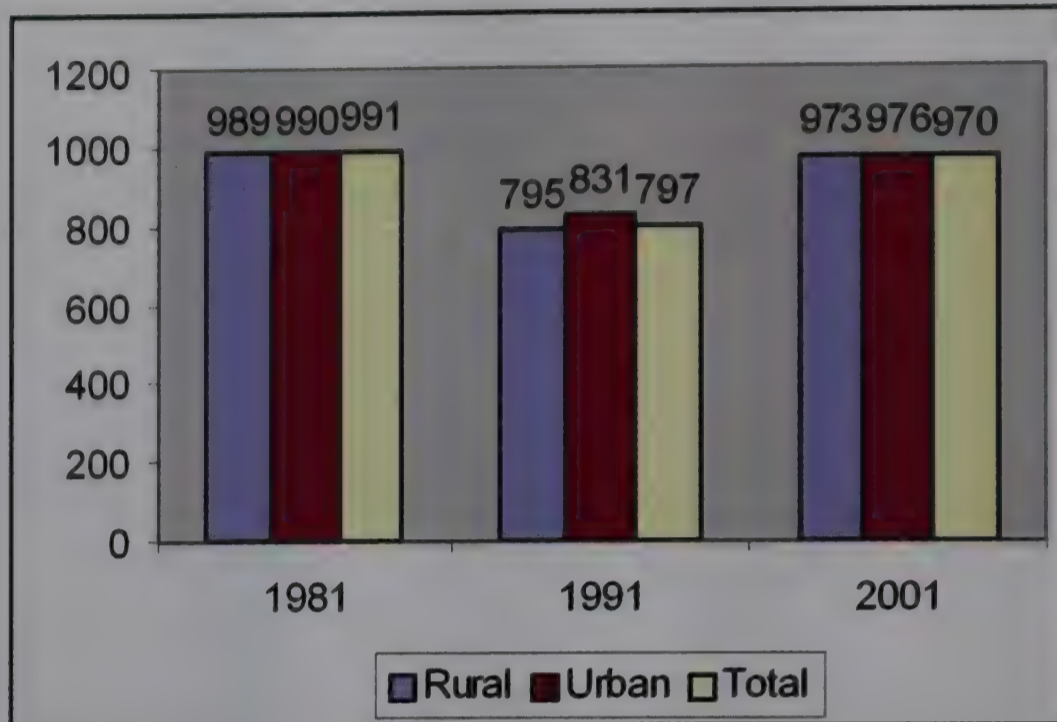
- **Involving the private sector in service provision:** HP government has introduced a provision for reimbursement of expenditure on medical treatment to the Government employees if they undergo treatment in prescribed private hospitals in and outside the State.
- **Contracting out of select services:** Three support services in hospitals; viz., scavenging, laundry and diet have been contracted out to the private sector, wherever possible.
- **Decentralization of administrative & financial powers upto the PHC level:** By the end of 1999, the administrative and financial powers right up to PHC level has been decentralized.
- **Role of Panchayati Raj Institutions (PRIs):** The PRIs have been given adequate powers to play a vital role in health related activities. Parivar Kalyan Salahkar Samiti (PARIKAS) have been formed at all the three levels of Panchayati Raj System. The Pradhan of the Gram Panchayat is the President of the Panchayat PARIKAS and the female health worker is the Secretary. The functions of the PARIKAS include creating awareness about the National Health Programmes, ensuring people receive full benefit of programmes like RCH, nutrition, clean and potable water, ensuring overall cleanliness, assisting in monitoring ongoing programmes and supervision of health institutions, involvement in resource generation and utilization for CHC and PHC management and welfare.

Infant Mortality Rate



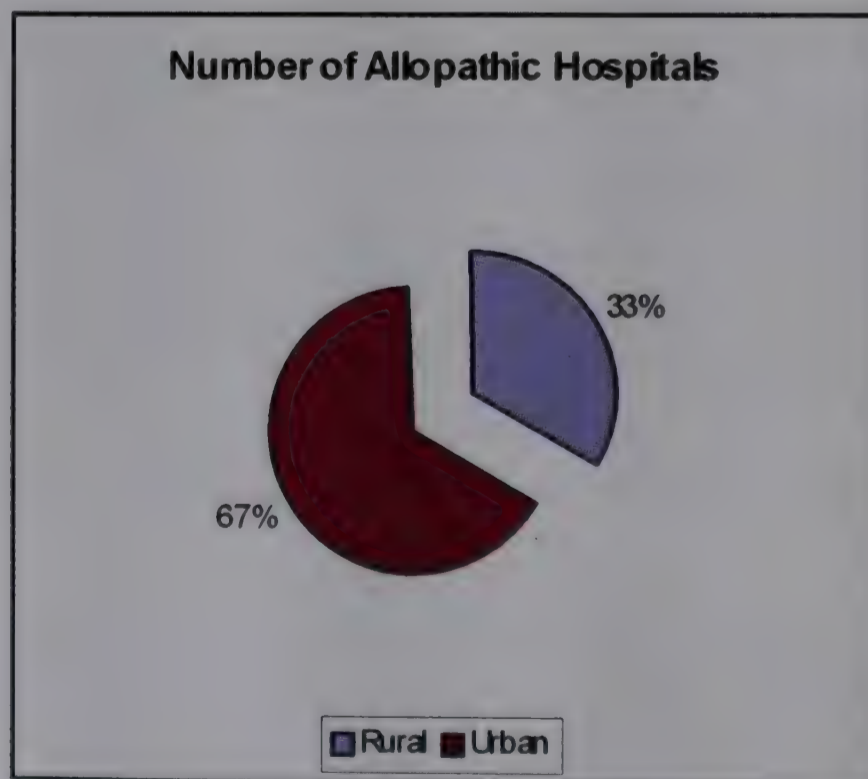
The infant mortality rate in Himachal Pradesh has gone down from 69 in 1990 to 52 in 2002. The mortality rate was high in 1991 when it was 75, however thereafter it started declining due to increase in health care facilities and also involvement of private sector in health care. The life expectancy rate in Himachal Pradesh from the year 1995 to 1999 was 65.1 for males and 65.8 for females. In 2004, the infant mortality rate in rural areas was 53 and in urban areas it was 23.

Sex Ratio



The sex ratio has fallen in both rural and urban areas. In rural areas, it has declined from 989 in 1981 to 973 in 2001. In urban areas it has declined from 990 in 1981 to 976 in 2001. If we combine urban and rural areas, the sex ratio has declined from 991 in 1981 to 970 in 2001.

Number of Allopathic Hospitals

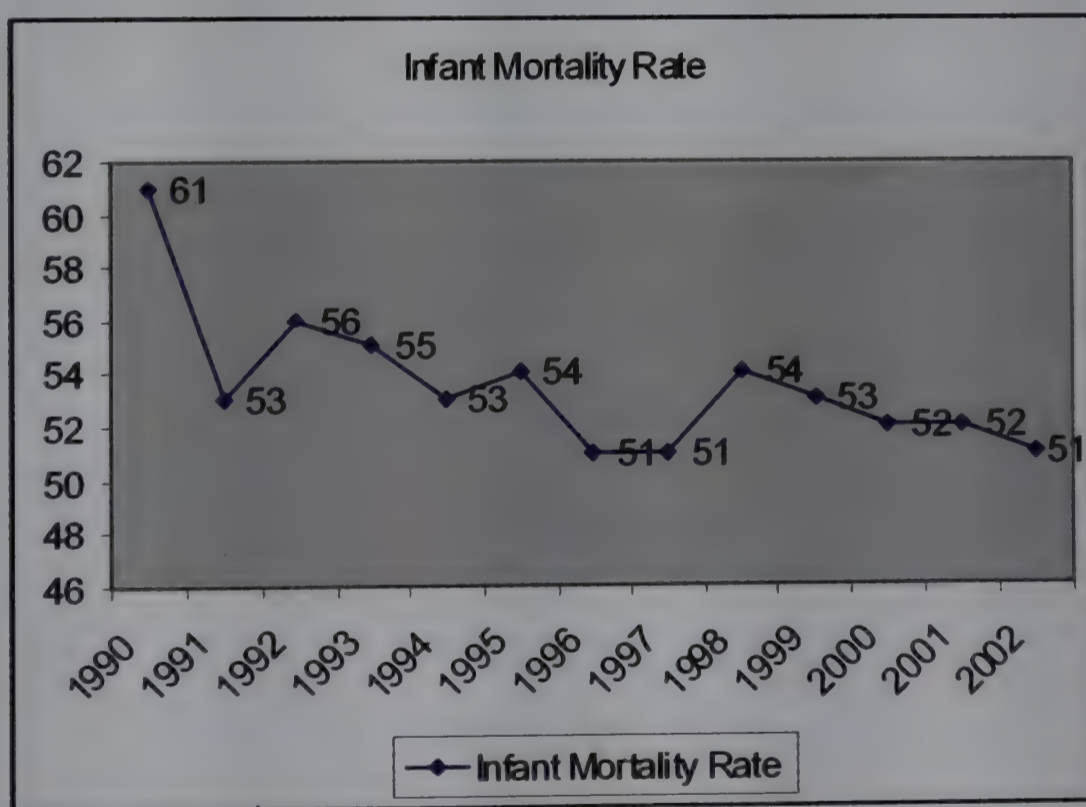


The total number of allopathic hospitals in Himachal Pradesh in the year 1999 were 81. Out of which 27 (approx. 33%) were in rural areas and 54 (approx. 67%) were in urban areas.

Punjab

- **Outsourcing of services:** The Punjab government has begun outsourcing of services in secondary level hospitals. The services relating to security, dental services, sanitation and ambulance services have already been contracted out.
- **Development of a Disease Surveillance System:** The Disease Surveillance system makes use of Geographical Information System (GIS) and the State has selected 21 communicable and 12 non-communicable diseases for active surveillance. In addition to the diseases covered under the national programmes, 7 out of the 21 communicable diseases which account for 95% of OPD and IPD cases have also been identified as priority. Surveillance Committees have been formed at district and village level and includes stake holders beyond the formal public health system.
- **Development of Performance and Quality Indicators for Hospitals:** The Hospital Management Information System (HMIS) has been designed with a view to provide core quality indicators for every hospital. Using selected parameters related to inputs (e.g. number of beds, vital drugs, etc.), processes (e.g. number of patients attended in OPD, number of deliveries conducted, number of blood units collected, segregation of waste, number of radiological tests done etc.) and output (e.g. proportion of patients referred to higher institutions), the system assigns a mark against each indicators vis-à-vis set benchmarks. For instance, a 50-bedded hospital is assigned 10 marks if the numbers of OPD cases are 3000 or more.
- **Revamping of primary health care services:** In light of strengthening of clinical services at the secondary level, the state Government seeks to fill the gaps in the health care system at primary health care as well as strengthen the linkages between primary and secondary system and thereby ensure availability of clinical services to a maximum number of people.

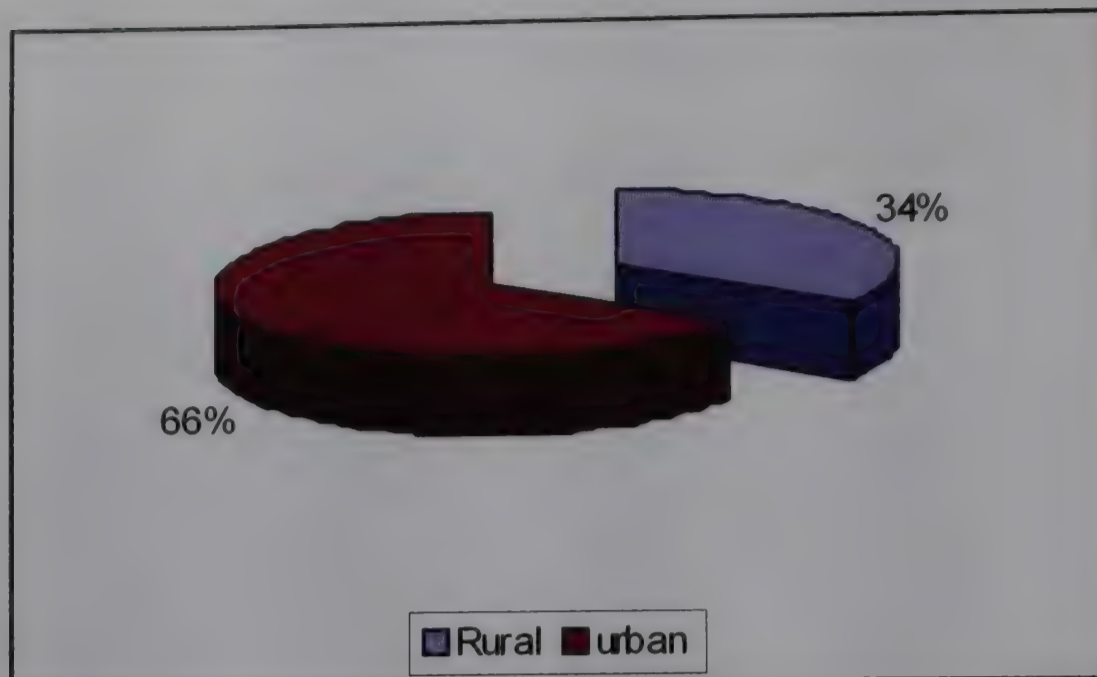
Infant Mortality Rate



The infant mortality rate in Punjab has declined from 61 in 1990 to 51 in 2002. The life expectancy at birth was 63.9 for males and 72 for females during the period 2001-06.

In 2004, the infant mortality rate was 50 in rural areas and 36 in urban areas.

Number of allopathic hospitals

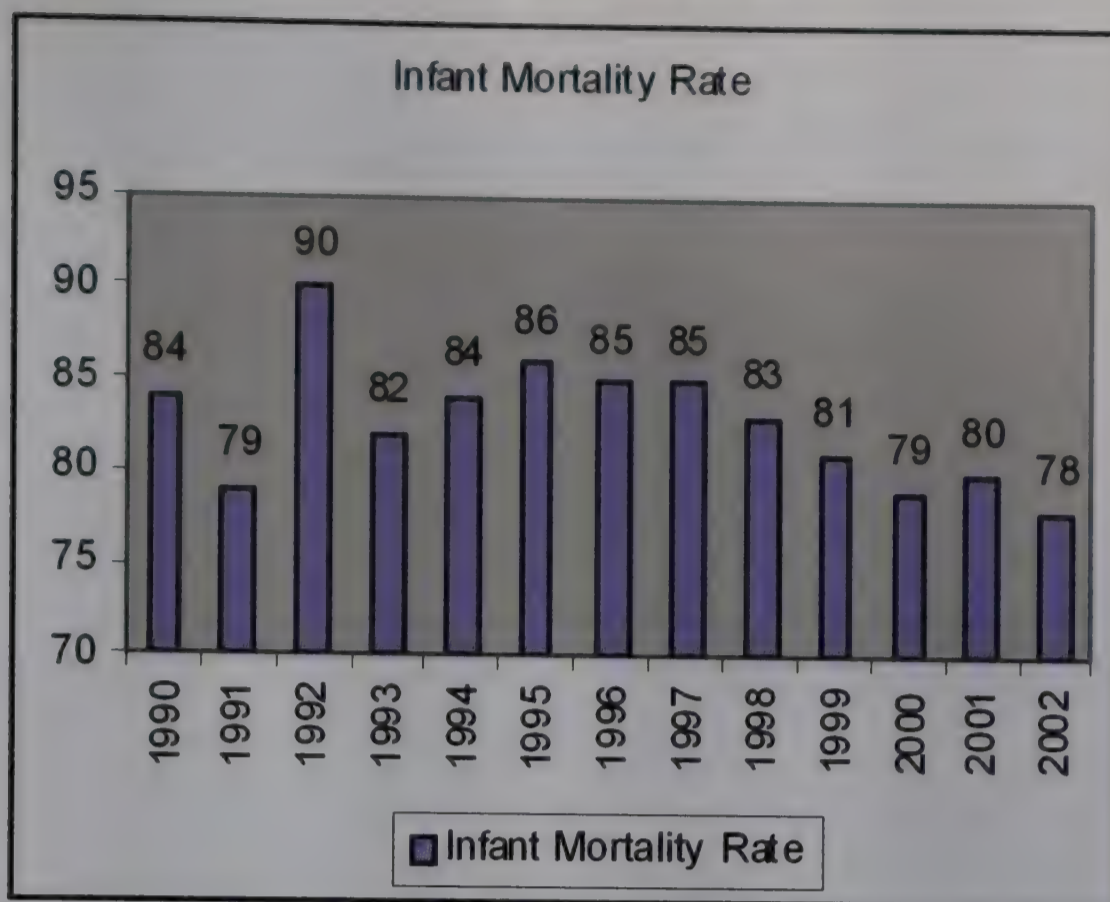


The number of allopathic hospitals in Punjab in the year 1999 were 220. Out of which 75 (approx. 34%) were in rural areas and 145 (approx. 66%) were in urban areas.

Rajasthan

- **Policy on private sector participation for installation of sophisticated medical technology in public sector hospitals:** With a view to equip the government hospitals with latest diagnostic and treatment machines/equipment, the GoR decided to involve the private sector to install these diagnostic/treatment machines/equipment in hospitals.
- **Policy for medical colleges / dental colleges in private sector⁵:** To involve the private sector in augmenting the availability of doctors and medical facilities in the state, a policy for private sector participation in Medical and Dental education was announced. This policy seeks to attract investors to set up Medical and Dental Colleges in the private sector in the State. As per the Cabinet decision on the subject⁶ and recommendations of the Empowered Committee for Establishment of Medical and Dental Colleges in private sector, the essentiality certificate cum NOC for establishment of Medical College/Dental College in private sector in the State will be issued by the Sub Committee of the administrative department subject to certain conditions.
- **Outsourcing of services:** In the State of Rajasthan, contracting out has been undertaken for the cleaning services in hospitals, management of the cycle stand as well as the canteen.
- **Initiatives in Decentralization:** The Government of Rajasthan has embarked on a programme of strengthening panchayats and granting them a greater role in governance and public affairs. The linkage between decentralisation strategies and health care has become an important thrust area. Following the 73rd and 74th Constitutional Amendments, the Rajasthan Panchayati Raj (Modification of provision in their application to the Scheduled Areas) Act 1999 has been enacted in order to provide wide ranging powers to the village committees in the predominantly tribal areas.

Infant Mortality Rate



The infant mortality rate was decreased from 84 in 1990 to 78 in 2002. The life expectancy rate during 2001-06 was 62.2 for males and 62.8 for females.

Uttaranchal

- **Establishment of an integrated umbrella society at state and district level:** The State government is merging the various vertical societies to create an integrated umbrella society at the district level. A District Empowered Society has been registered in each district. This committee is headed by a District Magistrate with the CMO functioning as a Vice-President, a Programme Officer (PO) and representatives from the NGOs and private sector. The PO is responsible for the day-to-day management of a programme. The funds would flow from the Govt. of India through the State level society to the District Empowered Committees for implementation of National Health Programmes. A Secretariat, manned with personnel and equipment provides support to this initiative in each district.
- **Appointment of Medical Officers & ANMs on contractual basis:** With a view to improve access to health services in remote areas and given the difficulty in retaining services of various service providers due to lack of accommodation and low salary, contractual appointments of medical officers and ANMs are being made. This initiative has been in place and 187 Medical Officers & 258 ANMs have been appointed on a contract basis.
- **Fixing roles & responsibilities of Medical Officers at Additional PHCs & SADs:** With a view to tackle management issues, the roles and responsibilities of Medical Officers at the Additional PHC have been fixed. As per this stipulation, the MO in-charge of the Additional PHC would function as a controlling officer for all service providers at the sub-centers and for all the health supervisors working in their territory.
- **Integration of health programmes with ICDS programme:** With the objectives of combating the problem of access to health services, extending the reach of health services to remote and underserved areas and to bring about convergence in the programmes of the health department and the ICDS, the Angandwadi workers (AWWs) have been given orientation training to register ANC's & refer high risk cases.

Despite these efforts, India's health sector is crying out for its more than one billion population, a developed intensive medical care system has started to suffer of the rising burden of chronic diseases. India reckons for 16.5% of global population, it contributes to a large number of the world's diseases shown below by the chart.

Disease Burden Estimates, 2005

Disease/Health Condition	Current Estimate of cases-2005/lakhs*	Projected number of cases, 2015/lakhs**
I. Communicable Diseases, Maternal & Perinatal Conditions		
Tuberculosis	85 (2000)	NA
HIV/AIDS	51 (2004)	190
Diarrheal Diseases episodes/yr	760	880
Malaria and Other Vector Borne Conditions		20.37 (2004) NA
Leprosy	3,671 (2004) Expect to be Eliminated	
IMR/1000 live births	63 (2002)	53.14
Otitis Media	3.57	4.18
Maternal Mortality/100000 births	4.40	NA
II. Non-Communicable Conditions		
Cancers	8,07 (2004)	9.99
Diabetes	310	460
Mental Health	650	800
Blindness	141.07 (2000)	129.96
Cardiovascular Diseases	290 (2000)	640
COPD and Asthma	405,20 (2001)	596.36
III. Other Non-Communicable		
Injuries-Deaths	9.8	10.96
No. Hospitalization	170	220

Source: Report of the National Commission on Macroeconomics and health, 2006

The diseases come and become chronic, more resistant and more lethal. While old hazards continue, new diseases have started to rear their head. India is a ground of four crore diabetic; dubious distinction of being diabetic capital of the world. 12.5% of urban population is diabetic due to food habit and sedentic life style of the population. Diabetic foot complication is the most devastating with 55,000 leg amputations in India due to the disease only. Cardiovascular diseases are also rising. Nearly 3.8 crore cases were detected in 2005 and experts believe it will reach 6.4 crore by the year 2015.

Chapter - 4

Social and Economic Burden of HIV/AIDS & TB

Tuberculosis (TB) has ranked among the most feared and dreaded of all diseases and infects more people than any other time in the history. It is an airborne infectious disease caused by the TB bacillus (*Mycobacterium tuberculosis*) and can cause serious damage to the lungs. Now more than one third of the world is infected with TB. TB kills 8,000 people a day - that is 2-3 million people each year. It kills more people than either AIDS or malaria. In fact, TB is the biggest killer of young people and adults in the world today. One third of the world's population is infected with TB. It accounts for one third of AIDS deaths worldwide.

While the global response to HIV/AIDS is growing, too little attention is being given to the relationship between HIV/AIDS and tuberculosis. It is the biggest killer of people who are HIV-positive. If one is HIV-positive, then he is 30 times more likely to get sick with TB once infected. If present trend continue, by 2020 TB will remain one of the top causes of death from a single infectious agent and kill one person in every 9 seconds. A total of 12 million people are co-infected with both diseases and most of them are in Southern Africa. That may be the reason Nelson Mandela remarked that "we cannot win the battle against AIDS if we do not also fight TB. TB is too often a death sentence for people with AIDS. It does not have to be this way."⁷

HIV-AIDS and TB Epidemics: A Vicious Cycle

- One in three HIV-infected people worldwide are co-infected with the TB bacterium.
- Someone in the world is newly infected with TB bacilli every second.
- TB is responsible for the death of one out of every three people with HIV/AIDS worldwide.
- People who are HIV-positive and infected with TB are 30 times more likely to develop active TB than people who are HIV-negative.
- The TB bacterium enhances HIV replication and might accelerate the natural progression of HIV infection.
- Because of the increased spread of HIV in sub-Saharan Africa, the number of TB cases in that region will double to 4 million new cases per year soon after 2005.

Human health depends on economic standards, education of the public and the organization of health services which in turn depend on the availability of adequate funds, technical personnel, physical facilities like clinics, dispensaries, hospitals etc and adequate supply of drugs, dressings and equipment, etc. All these have a bearing on the tuberculosis problem. It is generally known that the extent of tuberculosis in a community depends largely on the living standards of its people, and that malnutrition, poor housing and overcrowding are particularly congenial to the development of this disease. It is also recognized that a complex set of factors associated with the change of environment consequent on the movement of people from rural to industrialized or urban or semi-urban areas do play a part in the epidemiology of tuberculosis especially, in the developing countries.

Tuberculosis in India

India has one of the world's largest numbers of people infected with TB. As per the estimates of the World Health Organization, and the Ministry of Health and Family Welfare, Government of India, nearly 40 per cent of the total population in India is infected with the TB bacillus. India accounts for nearly one-third of the global burden of TB, and two-thirds of total cases in South-East Asia. Additional 1.8 million TB cases are detected in India every year, of which 0.8 million cases are of smear-positive pulmonary TB, which is highly contagious. Tuberculosis is one of the biggest

⁷ Nelson Mandela, Former President of South Africa, July 15, 2004.

killers in India, with more than 400,000 deaths per annum. In other words, every day an additional 5000 people develop TB and 1000 people die of TB in the country. Death from TB is also high among women. TB accounts for 26 per cent of all avoidable adult deaths in India and deaths from TB exceed the combined deaths from all other communicable diseases in the country. TB mostly affects the economically productive population in the age-group of 20 to 50 years, and thus, if left unchecked or uncontrolled, has serious implications for the economy of any nation. Tuberculosis continues to a major health problem in India because of its high mortality and morbidity.

India Fact Sheet

- India accounts for nearly one-third of the global TB burden.
- 40% of the Indian population has TB infection.
- Every day in India more than 20,000 people become infected with the TB bacillus and more than 5000 people develop the disease.
- Every year 20 lakh people develop TB in India, of which at least 8 lakh are infectious (sputum positive).
- Every year, nearly 5 lakh die of TB – 1000 deaths per day, one TB death every minute.
- Untreated TB cases spread the infection to others in the community: each infectious patient can infect 10-15 individuals in a year unless effectively treated.
- In India, TB kills 14 times more people than all tropical diseases combined, 21 times more than malaria, and 400 times more than leprosy.
- TB kills more women than all causes of maternal mortality combined.
- The direct and indirect costs of TB to the country amount to Rs. 12,000 crore per year.

India ranks first among the 22 countries worldwide with the highest number of tuberculosis cases. It is the largest killer disease in India. According to the World Health Organization's Global Tuberculosis Control Report 2004, there were more than 17 Lakhs TB cases in India, representing more than one-fifth of all TB cases worldwide in 2000. The estimated incidence rate in 2002 was 168 per 100,000 people. An estimated 400,000 die of the disease each year.

India TB profile

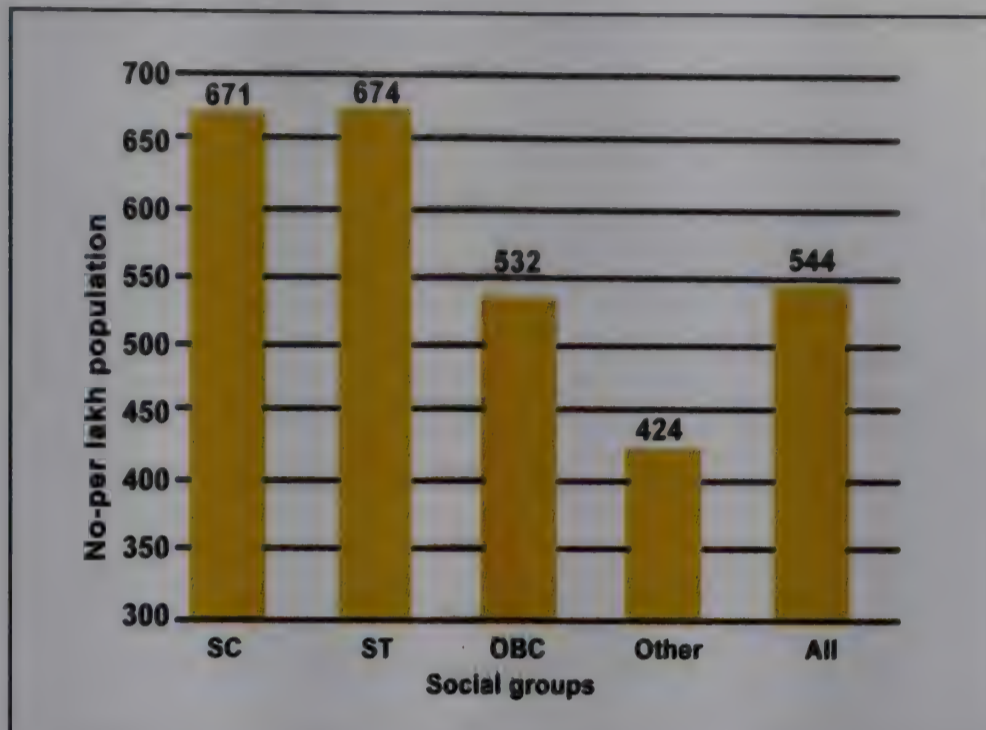
Country population	1,049, 549,473
Global Rank out of 22 high burden TB countries	1
Estimated TB cases in 2002	1,761,339
Estimated TB incidence (all cases per 100,000 pop)	168
DOTS population coverage in 2002 (%)	52
DOTS treatment success rate in 2002 (new SS+%)	85
Estimated adult TB cases HIV+(%)	4.6

Source: Global Tuberculosis Control: WHO Report, 2004

With the emergence of HIV/AIDS in India (estimated around 51 Lakh cases between the age of 15-49), there is a further risk of increase in the tuberculosis disease burden in the country as there are studies to show that with HIV/AIDS infection, there is a higher probability of the patient breaking down with tuberculosis due to decline in immunity of the body. Even we take a modest scenario of 3 per cent growth in the age group of 15-49, an estimated additional 500 Lakhs people are likely to become HIV/AIDS positive by 2025. We can expect that an expanded HIV epidemic will greatly increase the numbers with active TB, by weakening the affected individuals' immune system in a population with high rates of M. tuberculosis infection.

An HIV infected person co-infected with tuberculosis has a 50 per cent lifetime risk of developing TB disease, whereas an HIV non-infected person infected with tuberculosis has only a 10 per cent risk of developing TB. This is especially important in India, where it is estimated that 40 per cent of the adult population is infected with the tuberculosis bacilli. It is estimated that 50 to 60 per cent of the HIV-infected persons in India will develop TB disease during their lifetime.

Number of Persons per Lakh Population Suffering from TB by Social Group in India

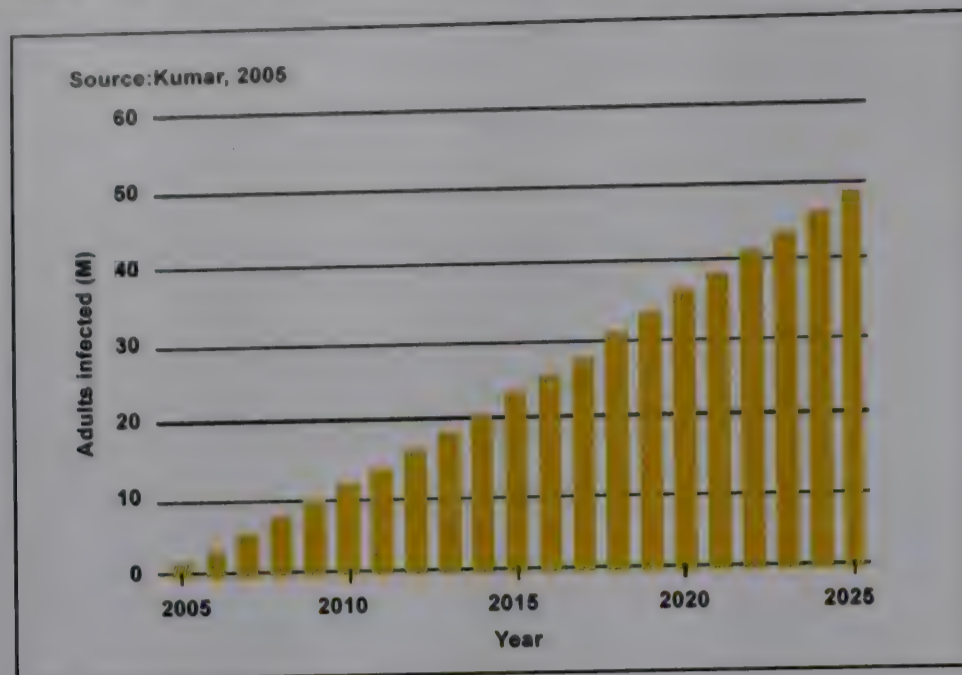


The success of the tuberculosis control programme greatly depends on how the AIDS control programme functions in the country. HIV/AIDS epidemic can have an impact on the prevalence rate of tuberculosis in the country. The present estimate of TB prevalence of 8.5 million in the country does not take into consideration the impact of HIV/AIDS. There are evidences in the world to show that with increase in the prevalence of HIV/AIDS, the incidence of tuberculosis also increases. In India, where there are still questions surrounding the prevalence rates of HIV/AIDS, it is important to factor-in the possible impacts of TB-HIV co-infection while designing the future course of the TB and HIV control programmes. There is an underlying concern across the world that TB control cannot make much headway in HIV prevalent countries unless HIV control is achieved.

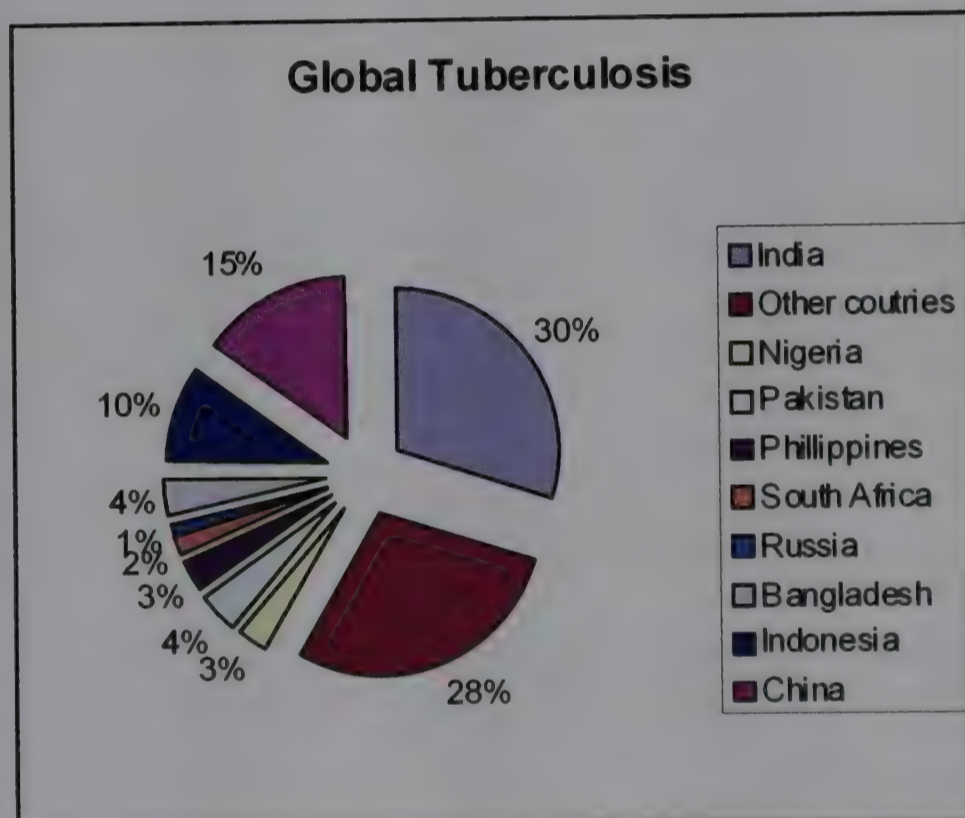
The treatment of HIV/AIDS is so expensive to the extent that the services and treatment amounts to Rs 6000 during the six month referral period for anti-retroviral (ART), the expenditure is much higher to the tune of Rs 18150 per person for a six month period. This is not affordable to a person in the below poverty line. The projections of the number of possible HIV/AIDS infectants are alarming.

This is the story with TB also. The economic burden that a patient with TB can potentially impose on a poor family, whose main source of earning is physical labour, is huge. For example, one study on 304 patients with TB found that the average cost of treatment over a six month period amounted to nearly Rs 2000 with an additional Rs 4000 of lost wages during that period. It is estimated 300,000 children leave school on account of TB afflicting either of their parents or both, forcing them to take up employment to provide an additional source of income. The economic costs of TB in India are estimated to be Rs 12,000 crore and a loss of over 10 crore productive days.

Cumulative HIV-1 Infections from 2005 to 2025 in India in million



Increasing prevalence of HIV infection, which makes people more susceptible to TB, and drug resistant types of TB mean the disease will pose an increasingly serious public health hazard with a high economic burden for India for several decades to come.



India has more cases of tuberculosis than any other country in the world and twice as many cases as China, which has the next highest number.

Government Initiatives to Control Tuberculosis

Government of India launched a national programme to control the incidence and prevalence of TB in the country. The programme – called the National Tuberculosis Programme (NTP) – was implemented to control the spread of tuberculosis. It was launched in 1962. The NTP, however, suffered from several inadequacies which reflected in poor implementation of the programme leading to non-achievement of the set targets. NTP had weaknesses like managerial deficiencies, faulty programme design and implementation, over-dependence on x-rays for treatment, non-standardisation of treatment regimens, lack of proper documentation, improper monitoring and supervision, and low rates of treatment completion. As per the estimates of the Indian Council of Medical Research, New Delhi and Tuberculosis Research Centre, Chennai, only 30 per cent of the tuberculosis patients were diagnosed under the NTP, and only 30 per cent of the patients diagnosed were successfully treated. The World Bank, which was supporting the National Tuberculosis Programme called the results of NTP as disappointing and way below the set minimum targets. All through the days of

the National Tuberculosis Programme (1962-1992), tuberculosis was never accorded the priority it deserved. In the 8th Five Year Plan (1992-1997), TB got a total outlay of INR 8.5 billion, which is only 8.25 per cent of the outlay earmarked for communicable diseases as against 41 per cent for malaria and 13.6 per cent for leprosy.

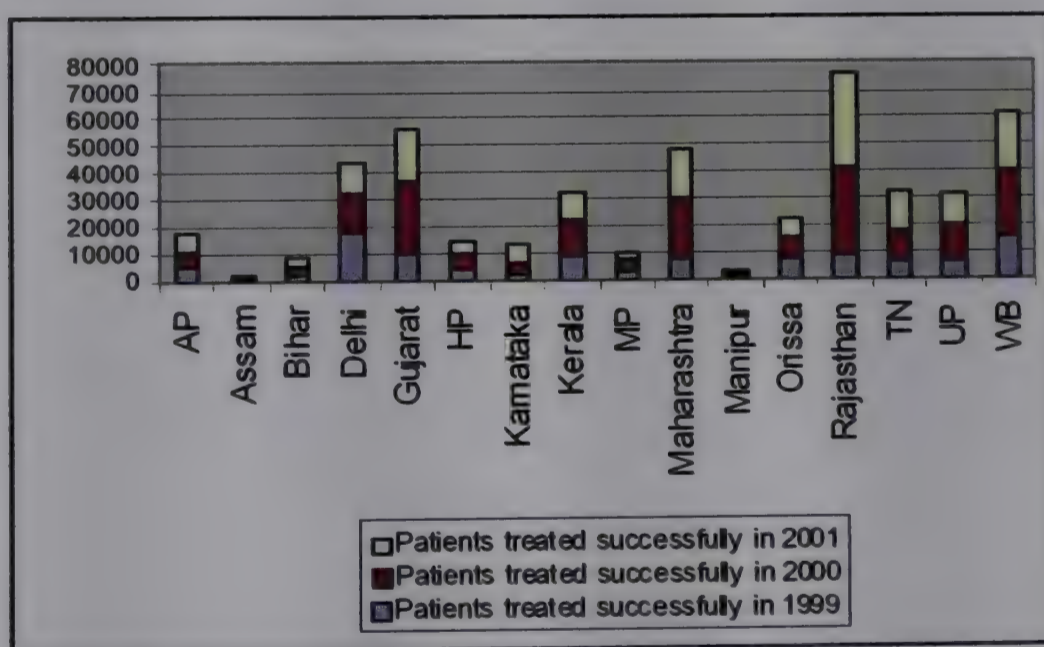
In 1992, World Bank, WHO and UN criticized government of India's NTP as it failed to achieve the set targets. The government of India reviewed the National Tuberculosis Programme, and revised its strategies to tackle the problem of tuberculosis. The new programme was launched through active support of the World Bank in 1993. It is called the 'Revised National Tuberculosis Control Programme or RNTCP'. The RNTCP is acclaimed worldwide as a success story in expanding the coverage of population having access to TB treatment through DOTS centres, and in increasing the case detection and treatment rates in the country.

As per the estimates of the Central TB Division, Ministry of Health and Family Welfare, in 2005 about 90 per cent of the population in the country was covered through DOTS centres and every month additional 10 to 15 million people are brought under its fold. Since the time of inception till 2005, more than 4.3 million TB patients have been initiated on DOTS treatment under RNTCP. In 1999, India under RNTCP accounted for one-third and in 2000-01 for over half of the global increase in DOTS coverage. RNTCP has emerged as a successful example in public health management, and today many developing countries are trying to emulate and replicate the Indian experience in their respective economies.

RNTCP: Achievements

RNTCP was launched in 1993 as a pilot project in 5 places: Delhi, Mumbai, Kolkatta, Bangalore and Mehasana district of Gujarat. In the year 2000, it covered 287 million people. In 2001, it covered 450 million people. In 2002, it covered 530 million people which accounted for almost 50% of infected population. In 2003, it covered 778 million people that accounted for 75% of infected population. In 2004, it covered 947 million people that accounted for nearly 87% of infected population and in 2005 almost 95% of infected population was covered by RNCTP scheme.

Number of Patients Treated Successfully Under DOTS



In AP number of patients successfully treated is increased from 4973 in 1999 to 7070 in 2001. In Assam it has increased from 638 to 683. In Bihar it has increased from 1685 to 3235. In Gujarat it has increased from 9850 to 19415. In HP it has increased from 3774 to 4398. In Karnataka it has increased from 1829 to 7079. In Kerala, it has increased from 8044 to 10124. In Maharashtra, it has increased from 7537 to 19256. In Rajasthan it has increased from 8120 to 34128. In TN it has increased from 5611 to 14987. In UP it has increased from 6462 to 11809. In WB it has increased from 15676 to 21403.

National Health Plans and Tuberculosis Control

The national health plans envisage expansion of rural health services and hospitals, development of training programmes to increase the medical man-power, control of communicable diseases, provision of wholesome water supply, planned

parenthood, environmental sanitation, improvement of nutritional standards and education of the masses on health matters. With the eradication of Malaria, today Tuberculosis poses the most important major public health problem. Tuberculosis control forms one of the priority items in our National Health Programmes. Our basic health services will be "on ground" throughout the country, in the next few years. Tuberculosis control programme has to be integrated in the general health services in order to make it a success.

The Urgent Need to Address TB and HIV/AIDS Together

In most countries with HIV/AIDS epidemics, TB and HIV/AIDS are still addressed as separate and distinct diseases, and HIV/AIDS control strategies too often ignore TB. TB and HIV are overlapping epidemics. The HIV pandemic presents a massive challenge to the control of TB at all levels. People living with HIV have increased susceptibility to active tuberculosis, and HIV infection is the greatest risk factor worldwide for tuberculosis disease. TB is also one of the most common causes of morbidity and one of the leading causes of mortality in people living with HIV/AIDS.

WHO-recommended strategy to cure standard TB is DOTS. DOTS combines five elements—political commitment, microscopy services, drug supplies, surveillance and monitoring systems, and use of highly efficacious treatment regimes, including chemotherapy. Once the patients with infectious TB have been identified, health and community workers and trained volunteers observe and record patients swallowing the full course of the correct dosage of anti-TB medicines. The drugs required for a full six to eight months of standard treatment under DOTS cost as little as Rs. 450. Effective strategies also exist for treating multi-drug resistant TB-DOTSPlus, built upon the DOTS model. The WHO's Green Light Committee has reduced the cost of second-line TB drugs by as much as 90 percent. The India's Revised National TB Control Program (RNTCP) shows the remarkable progress that is possible for rapidly scaling up TB efforts. India's RNTCP has expanded India's DOTS coverage 40-fold in the last five years to over 70 percent of the country's population. To date, the RNTCP has successfully treated 2.5 million TB patients and trained 300,000 health workers. The TB cure rate under the RNTCP DOTS program is 84 percent.

The global plan to stop TB 2006-2015 has been launched at the World Economic Forum in Davos.⁸ The core of this strategy is DOTS, the TB control approach introduced by WHO in 1995. Since then, more than 22 million patients have been treated under DOTS-based services. The new six-point strategy builds on this success, while recognizing the key challenges of TB/HIV and MDR-TB. It also responds to access, equity and quality constraints, and adopts evidence-based innovations in engaging with private health-care providers, empowering affected people and communities and helping to strengthen health systems and promote research.

This global plan will achieve:

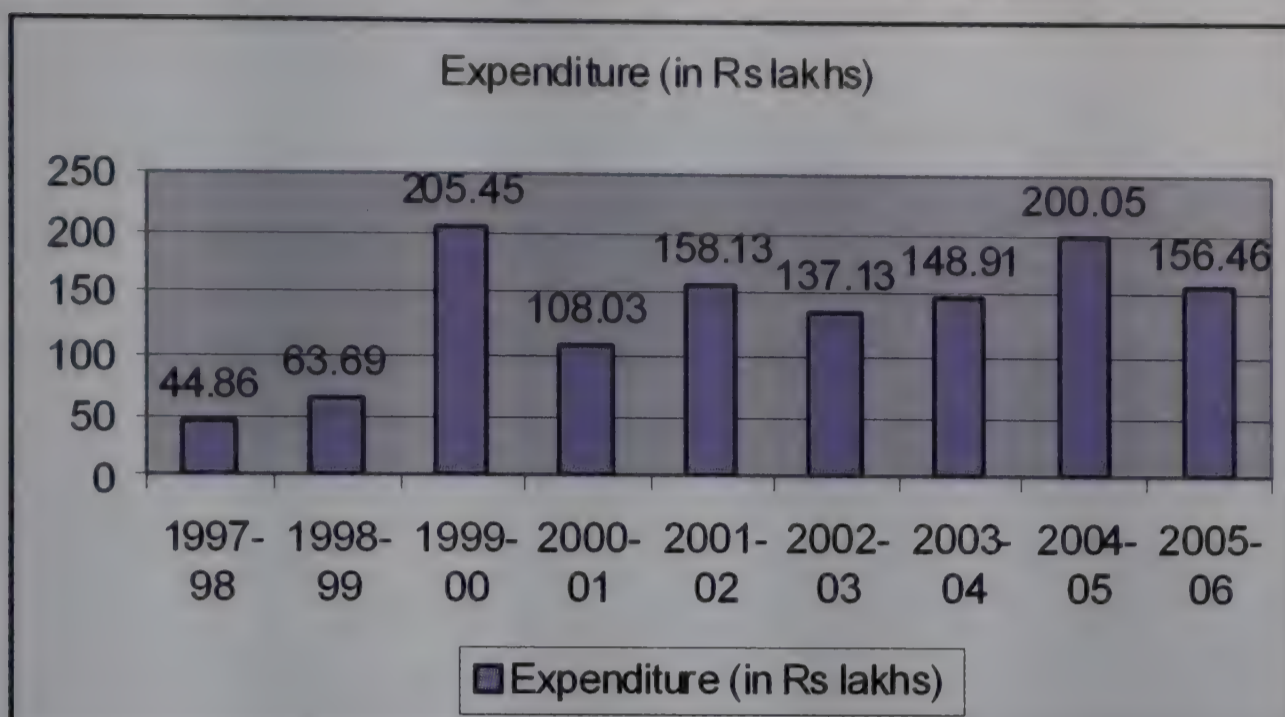
- Achievement of the Millennium Development Goal: "to have halted by 2015 and begun to reverse the incidence" of TB.
- Access to quality TB diagnosis and treatment for all.
- 14 million lives saved.
- 50 million people treated for TB in total.
- 3 million TB patients co-infected with HIV put on to anti-retrovirals.
- Nearly one million people treated for multidrug-resistant tuberculosis (MDR-TB).
- The first new TB drug in 40 years by 2010.
- A new vaccine by 2015.
- Rapid and inexpensive diagnostic tests at the point of care.

⁸ <http://www.stoptb.org/globalplan/>, 23.08.2006.

Tuberculosis in States

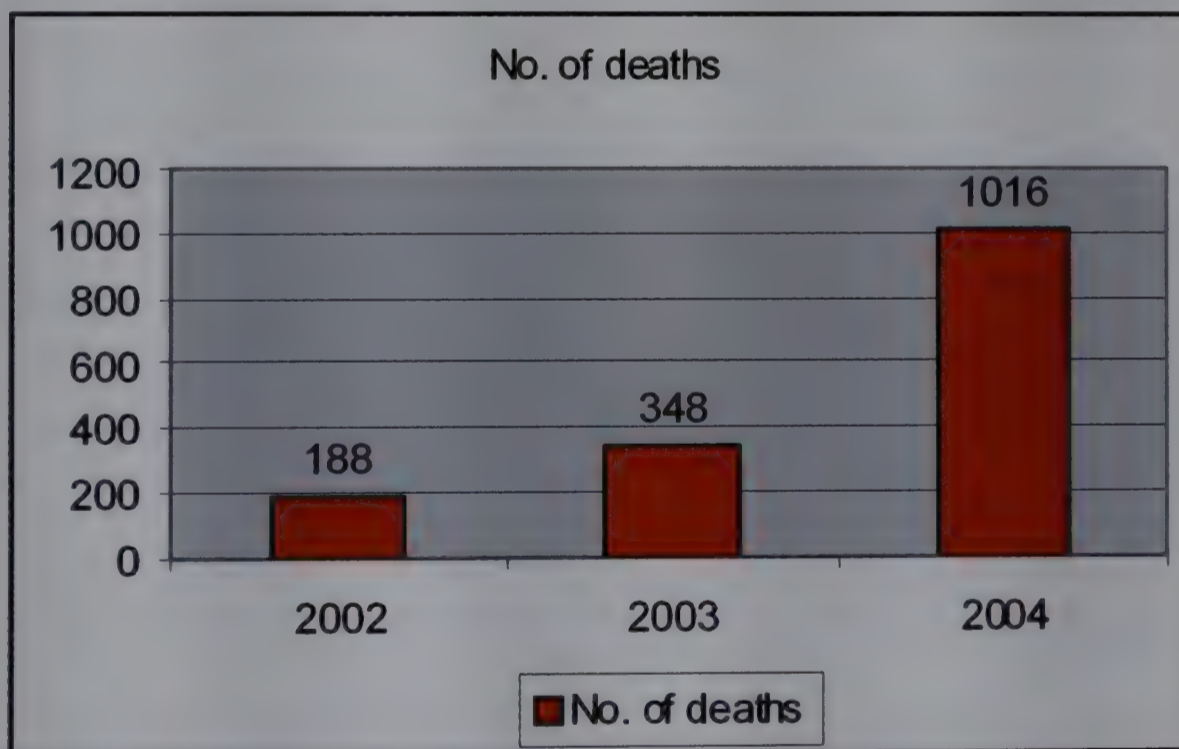
Haryana

Expenditure under National Tuberculosis Programme



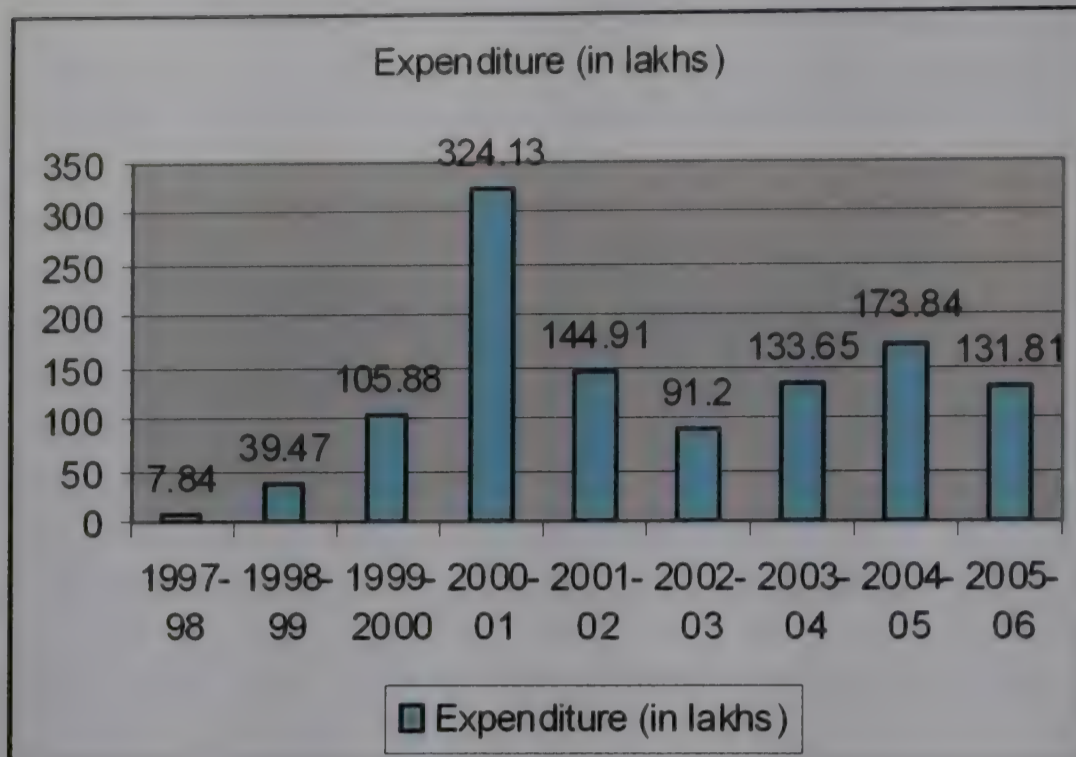
The expenditure on National Tuberculosis Programme has shown an increasing trend over the last 9 years. It has increased from 44.86 lakhs in 1997-98 to 156.46 lakhs in 2005-06.

Number of Deaths in Haryana due to Tuberculosis



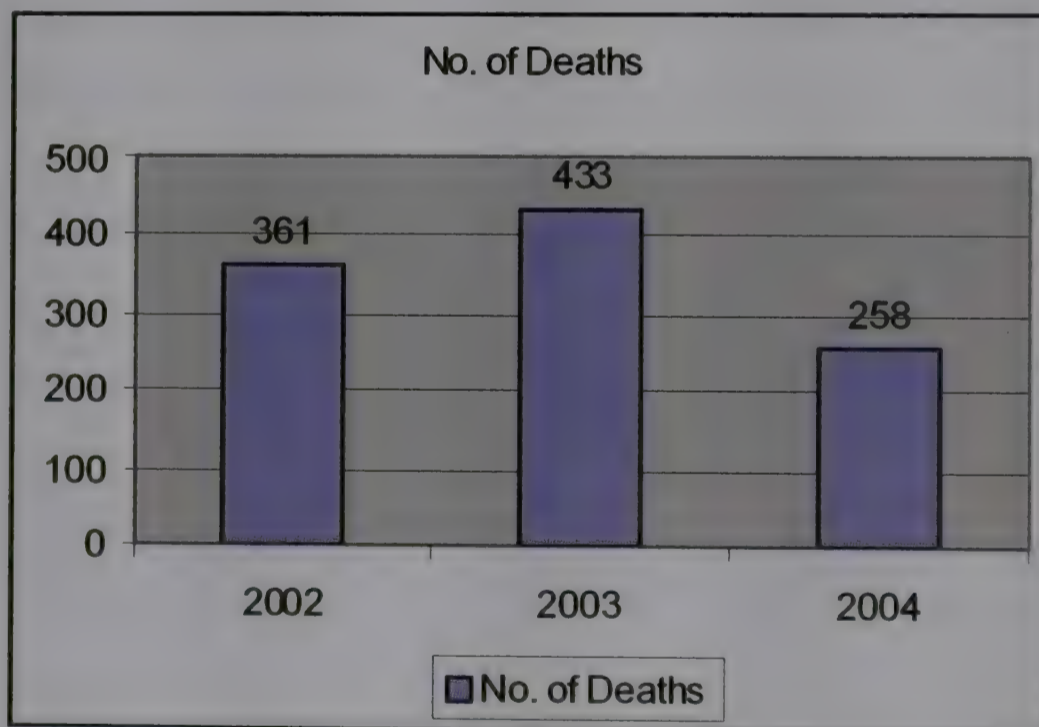
The number of deaths in Haryana has increased from 188 in 2002 to 1016 in 2004. This shows that Tuberculosis is still a serious cause of concern for Haryana.

Himachal Pradesh



The expenditure on National Tuberculosis programme has increased from 7.84 lakhs in 1997-98 to 131.81 lakhs in 2005-06. The highest increase in expenditure was in the year 2000-01 when it was increased by more than thrice from 105.88 lakhs to 324.13 lakhs.

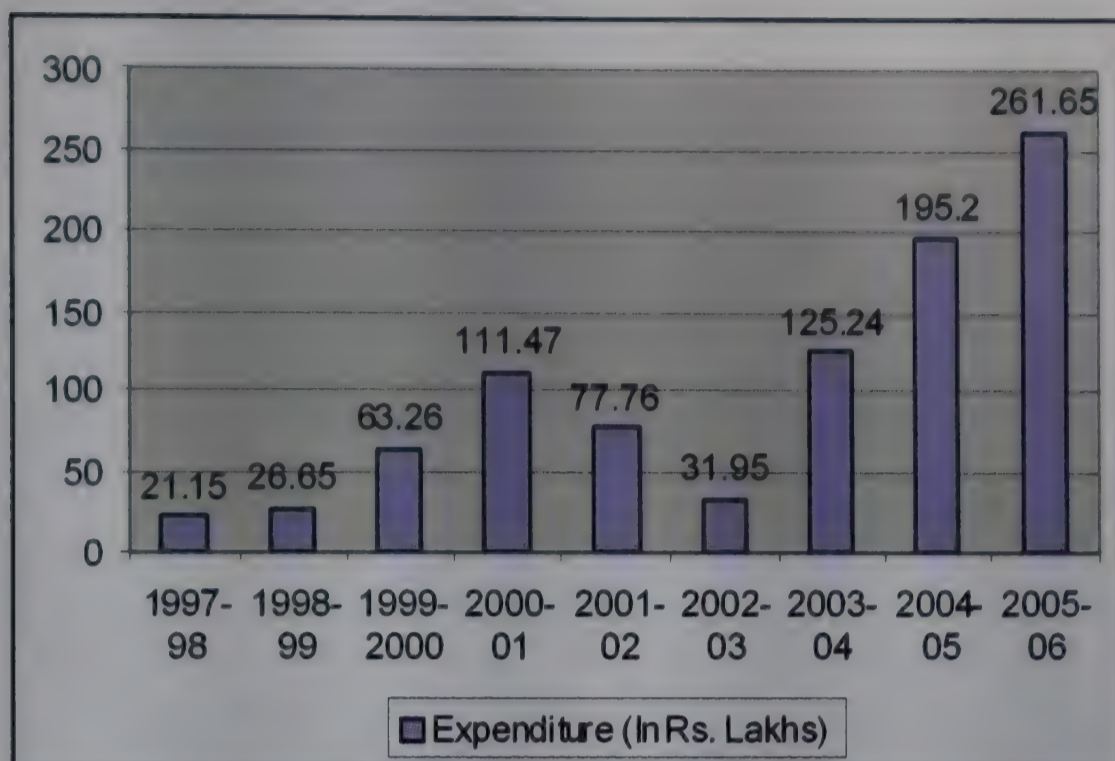
Number of Deaths Due to Tuberculosis



The number of deaths in Himachal Pradesh due to Tuberculosis has declined from 361 in 2002 to 258 in 2004. This shows that has made significant progress in controlling tuberculosis disease.

Jammu & Kashmir

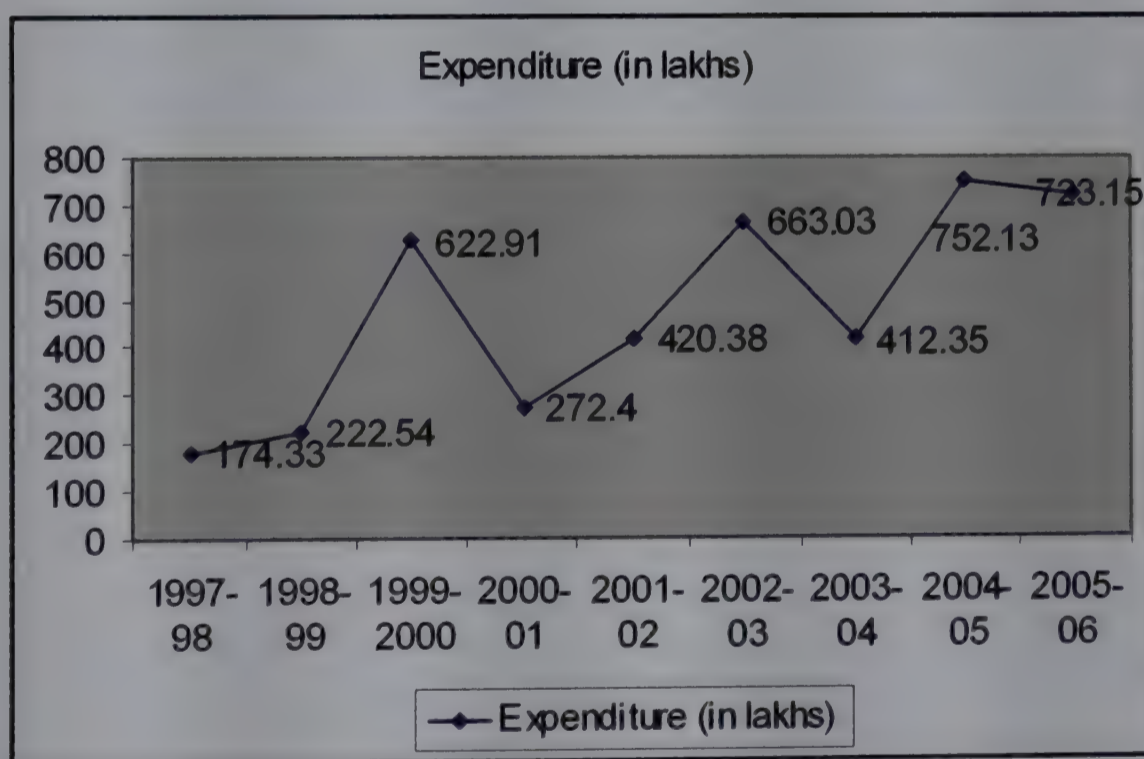
Expenditure on National Tuberculosis Programme



The expenditure on National Tuberculosis Programme has increased from 21.15 lakhs in 1997-98 to 261.65 lakhs in 2005-06. The expenditure has however declined in 2000 to 2003 but afterwards it has increased at a rapid pace. The number of deaths due to tuberculosis in J&K in 2004 was 23.

Madhya Pradesh

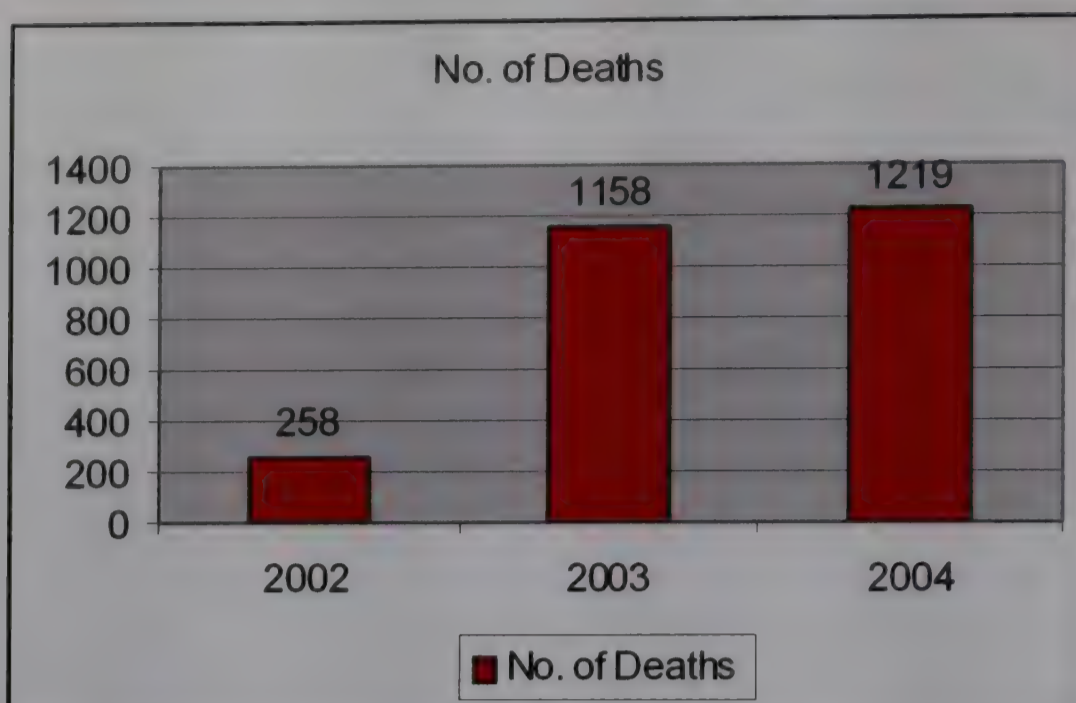
Expenditure on National Tuberculosis Programme



The expenditure on National Tuberculosis Programme has shown an increasing trend. It has increased from 174.33 lakhs in 1997-98 to 728.15 lakhs in 2005-06. It has declined in 2000-01 and 2003-04 but on an whole it is increasing.

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Number of Deaths Due to Tuberculosis



The number of deaths due to tuberculosis in MP has increased from 258 in 2002 to 1219 in 2004. This shows that government is required to take more steps to eradicate tuberculosis disease.

Tuberculosis: Risk Factors

Risk factors for TB include the following:

- HIV infection
- Low socioeconomic status
- Alcoholism
- Homelessness
- Crowded living conditions
- Diseases that weaken the immune system
- Migration from a country with a high number of cases
- Health care workers

Tuberculosis: Treatment

Modern antibiotic chemotherapy will cure up to 95 per cent of TB cases. However, the 6 - 8 month course of treatment must be fully completed or drug resistance will emerge. Treating multi-drug resistant TB is extremely expensive and puts an enormous strain on national health systems. The internationally recommended TB control strategy is DOTS (directly observed treatment, short-course). DOTS combine five elements: strong government commitment, laboratory based diagnosis, uninterrupted drug supplies, surveillance and monitoring systems, and use of effective regimes with direct observation of treatment.

Economic Costs Associated with Tuberculosis

Tuberculosis poses a fundamental challenge to India's current productivity and future growth. Tuberculosis is a major contributor to ill health and poverty in community. The success of any business is closely linked to the health and prosperity of the community. The community is a source of workers, services, contractors and consumers, in-fact it is

key part of overall business environment. The world economic forum report states that globally, tuberculosis leads to a decline in worker productivity to order of US\$ 13 billion annually.

The social and economic burden of tuberculosis follows from its unique age distribution. Tuberculosis affects all age groups, but has its greatest impact on productive adults. It is well known that adults aged 15 to 59 years are the most economically productive individuals; they are also the parents on whom the survival and development of children depend. Thus tuberculosis has the potential to impede the development of both individuals and society.

In India, tuberculosis is a disease of productive and economically active age group primarily the unorganized sector of labour force in India, especially between the ages of 15-54. It is a cause for economic loss not only to the infected person and his family as a result of direct drug cost but also causes economic loss to the company/business due to absenteeism, staff turnover and low productivity and disrupted workflow. The statistics shows that tuberculosis causes the loss of 100 million workdays per year in India alone, thus adding upto substantial costs to the companies.

As per the Report of the National Commission on Macroeconomics and Health, the economic burden that a patient with TB can potentially impose on a poor family whose main source of earning is physical labour, is huge. For example, one study on 304 patients with TB found that the average cost of treatment over a six month period amounted to nearly Rs 2000 with additional Rs 4000 of lost wages during that period. Such expenditures mean 83 days of wage losses and a mean debt of Rs 2059 which, with interest added, could take the family years to redeem. Moreover, recent studies suggest that every year in India, an estimated 300,000 children leave school on account of TB afflicting either of their parents or both, forcing them to take up employment to provide an additional source of income. The economic costs of TB in India are estimated to be Rs 12,000 crore and a loss of over 10 crore productive days.

There are 2 types of costs associated with tuberculosis: direct and indirect. Direct costs involve consultation fees and money spent on investigations and drugs. Indirect costs involves loss of wages due to illness, decreased earning ability due to illness or long term disability that necessitated change in type of work. According to a study conducted by Tuberculosis Research Centre and Indian Council of Medical Research (1997) the mean total direct cost attributable to diagnosis and treatment of tuberculosis in rural and urban areas were Rs 1338 and Rs 2775 respectively. The indirect cost in terms of loss of work days among rural patients was 61 days for patients aged between 15-25 years while it was 94 days for those aged 26-45 years and maximum (105 days) for patients aged 46 years or more. By contrast, for urban patients the number of days lost remained similar in the three different age groups. The proportion of various costs in relation to annual family income 13% for direct costs and 26% for indirect costs. With tuberculosis, there is loss of productivity and increase in debts. The average indirect cost observed for employed patients was Rs.3863/. More than half of the work days lost was in the pre-treatment period (48/83 days). This is an indirect indicator of the delay in establishing a diagnosis in these patients.

According to study by K.N Rao (Indian Journal of Tuberculosis, Vol. 13) there are 1.8 million cases which are infectious and need hospitalization. If they are to be hospitalised, it would roughly cost about Rs. 360 crores at Rs. 2,000 per bed per annum. But if they are treated on ambulatory basis, the cost would be about Rs. 24 crores, at the rate of 1/15th the cost of a bed. The expenditure on domiciliary treatment of live million cases is estimated to be about Rs. 66.5 crores. Taking the cost of bringing up a child up to an age of 18 years the loss to the nation due to death of 0.5 million persons due to tuberculosis is about Rs. 1,500 crores. Loss to the nation due to disablement of 6.3 million such persons calculated at per capita income of Rs. 300 per annum is Rs. 189 crores making the total indirect costs at Rs. 1,689 crores.

External Funding of National health Programmes (2002-03 in Crores)

NHPs	Total allocation	Share of external funding	Share of external funding (%)
Malaria	206.6 (29.3)	97.96	47.4
TB	96.8 (13.7)	95.10	98.2
Leprosy	75.0 (10.6)	67.99	90.7
AIDS	241.4 (34.3)	239.96	99.4
Blindness	84.6 (12)	12.25	14.5
Total	704.3 (100)	513.26	72.9

Source: Demand for grants, Ministry of Health and family welfare, respective years

Note: Figures in parenthesis are proportion of the total allocated for the 5 programmes.

Tuberculosis disease had a considerable impact on patients' households in terms of income, health, education and nutrition, particularly if the patient was a wage earner. This impact was especially visible in schoolchildren, particularly when the patient was a male breadwinner. Due to loss of income the families could not afford to buy adequate food or clothing or books for the children. Around 300,000 children drop out of school every year because their parents have TB and the kids have to work to feed their families.

Female patients find it difficult to perform routine household activities. Because of the stigma attached to TB, every year more than 100,000 women with the disease are thrown out of their homes or denied access to treatment. According to a study by Von Sudhakar Morankar and Nishi Suryawanshi (Bulletin: von Medicus Mundi Schweiz Nr. 77, Juli 2000) about half of the females who accepted their disease as TB reported that they were hiding the disease from the community due to the fear of social isolation and rejection. About two thirds of these women reported loss of self esteem due to the disease. TB patients who are older than 40 years, and who have completed their family responsibilities and roles (marriage and departure of children), feel lonely and have often no will to live and to be cured. Physical recovery from TB is affected by female patients' psychological problems such as feeling of insecurity, fear of isolation, fear of spreading disease to children etc. and the lack of support at family and community level. Those females who received a high level of support from spouses are found to be more optimistic about cure and are also more mentally stable. It is therefore important to consider the involvement of family and community for an effective TB control program.

Companies have long term interests in ensuring the national development of human capital- a healthy and educated workforce and in macroeconomic development and the market growth it entails. Tuberculosis undermines both.

Hurdles in Treatment

Although effective treatment is available,

- Lack of awareness and misconceptions about the disease.
- Late / improper diagnosis.
- Limited accessibility to diagnostic facilities.
- Incorrect treatment by doctors.
- Patients' non-compliance to treatment.
- shortage of qualified staff,
- Lack of health infrastructure.
- Poor preparation for decentralization of the health system, and
- Lack of coordination with the private sector.

Managing Tuberculosis in Work Places

Managing tuberculosis in workplaces makes good business sense as the workplace is ideal place for workers to gain awareness about hygiene and sanitation and can become a one point treatment centre. TB management can save costs by reducing absenteeism, staff turnover through prompt diagnosis and effective treatment and by reducing transmission to other workers. TB management in workplace is also an opportunity for businesses to demonstrate their social commitment.

Tuberculosis is caused primarily due to unhygienic conditions of living and workplaces. Being an airborne disease, proper ventilation and air passage in the rooms can prevent infection from spreading. Opening windows, exposure of sunlight is beneficial as UV light can kill TB bacilli. Air-conditioning on the other hand increases risk of infection, because of recirculation of air containing droplet nuclei other people in the same room and exposed to the infection. The legislature has made provisions for ventilation and against overcrowding in work places as most of the workshops have no lavatories and where they are, they are in a most deplorable condition. Some of the provisions in the Factories Act, 1947(Amended 1987) which aims at safety, health and welfare of workers are as follows:

Ventilation and Temperature - Effective and suitable provision shall be made in every factory for securing and maintaining in every work room, adequate ventilation by the circulation of fresh air, and such a temperature as will secure to workers therein reasonable conditions of comfort and prevent injury to health.

Dust and fume - In every factory in which, by reason of the manufacturing process carried on, there is given off any dust or fume or other impurity of such a nature and to such an extent as is likely to be injurious or offensive to the workers employed therein, or any dust in substantial quantities, effective measures shall be taken to prevent its inhalation and accumulation in any workroom, and if any exhaust appliance is necessary for this purpose, it shall be applied as near as possible to the point of origin of the dust, fume or other.

Artificial humidification - In respect of all factories in which the humidity of the air is artificially increased, the State Government may make rules prescribing standards of humidification and regulating the methods used for artificially increasing the humidity of the air and directing prescribed tests for determining the humidity of the air to be correctly carried out and recorded and prescribing methods to be adopted for securing adequate ventilation and cooling of the air in the workrooms.

Purification of Drinking Water - In any factory in which the humidity of the air is artificially increased, the water used for the 'purpose shall be taken from a public supply, or other source of drinking water, or shall be effectively purified before it is so used.

The Act requires that the workers should work in healthy and sanitary conditions and for that purpose it provides that precautions should be taken for the safety of workers and prevention of accidents. The duty of the employer is to secure the health and safety of workers and extends to providing adequate plant, machinery and appliances, supervision on workers, healthy and safe premises, systematic work handling that includes giving reasonable instructions. Detailed provisions are therefore made in diverse chapters of the act imposing obligations upon the owners of the factories to maintain inspecting staff and for maintenance of health, cleanliness, prevention of overcrowding and provision for amenities such as lighting, drinking water, etc.

The following are few principles based upon guidelines of WHO and ILO as to how companies can manage and approach TB Programme in workplaces;

- Acceptance and recognition of TB as a workplace issue.
- Identify cases of tuberculosis in workplace
- Create awareness and reduce stigma by dispelling myths about the disease
- Effective monitoring programme results
- Develop sustainable network of TB programme partners
- Forge linkages with HIV/AIDS Programme

Conclusion

Tuberculosis is a significant public health problem affecting young adults. Despite the increase in case detection rate and relatively better treatment success rate, the DOTS programme had certain serious shortcomings. There was high rate of absconding treatment and death, with low rates of cures and smear conversion. Vaccination against TB infection is the best preventive action. Effective identification of smear-positive cases of TB is important before they can infect others.

We recommend efforts that target the strengthening of TB Clinics, with emphasis on health education, training of health worker and raising the moral of health workers, the decentralization of TB management and involvement of administrative and community structures in TB control.

An institution such as a non-profit hospital can serve as an effective intermediary between the government DOTS programme and private practitioners. The Collaborative efforts between private practitioners and the government, through intermediary organizations, can help improve case detection and treatment success rates at low cost. Clearly defined roles and expectations and frequent communication are essential to success. Using such a public-private mix, the DOTS strategy can be implemented successfully, especially in areas where there are a large number of private health care providers, without increasing the governmental infrastructure.

Government should make it mandatory for all private and public medical practitioners in all states and cities to report cases of tuberculosis. The law should make it mandatory for medical practitioner to treat any case of notified disease, despite patient's resistance or refusal.

Health eradication regarding diseases like tuberculosis will help in building an efficient work force and also help in increasing the productivity of workers. The socio economic status of workers will improve and this will go a long way in India's economic development.

PHDCCI Monthly Bulletin

The PHD Chamber Bulletin is a monthly publication, recognized not only as of trade, industry and economy of corporate India, but also as a very useful medium of information. The bulletin, besides containing regular Chamber activities, also contains articles from select experts from various fields, industry updates and special features on topical issues.

Every month, the 2000 copies of the Bulletin are circulated amongst 1700 Industries and senior officials in the Government of India, Ministries, State Governments and the Chambers of Commerce and Associations in over fifty countries, including all our members. The Bulletin also enjoys readership in the Diplomatic Missions and Embassies in New Delhi and is subscribed by libraries of some of the noted Institutes and Universities of the country.

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PHDCCI is a private non-profit organization devoted to industrial growth, independent research and policy solutions. It is an industry led and industry managed organization, playing a proactive role in North India's development process. PHDCCI analyzes current and emerging issues and produced new ideas that take the reform process forward. PHDCCI members provide the highest quality research, policy recommendations, and analysis on the full range of public policy issues. Research at PHDCCI is conducted to inform the public debate. Its office bearers, the President and the Vice President, are leading industry leaders who devote more than two years of their time to guide the Secretariat in its activities.

PHDCCI traces its beginnings to 1905, when a group of leading reformers founded the first business chamber in North India, a private organization devoted to analyzing public policy issues at the national level. PHDCCI is financed largely by its members, corporations, and private individuals. The Chambers funds are devoted to carrying out its research and educational activities. PHDCCI works to create and sustain an environment conducive to the growth of industry in the eleven states of North India, partnering Industry and government through advisory and consultative processes.

PHDCCI is the leading business support organization in this area of Northern India that contributes to more than 40% of India's exports and is among the fastest growing industrial areas in the country. It is guided by its defining principles of ethical business methods, corporate governance and social responsibility. The Chamber works through two independent foundations, the PHDCCI Rural Development Foundation and the PHDCCI Family Welfare Foundation, in the areas of education, health care, environment and energy to foster sustainable development in the country.

In it's history of a little more than 100 years, PHDCCI has emerged as North India's premier business association, with a direct membership of over 1500 organizations form the private as well as public sectors, including SMEs and MNCs and reaches more than 60000 organizations through its 140 Association members and 175 Professional members covering national and regional sectoral associations. It provides a broad range of services to its members helping them enhance productivity; improve efficiency and network with domestic and foreign partners. With 6 offices in India and institutional partnerships with a large number of counterpart organization in various countries, PHDCCI serves as a reference point for Indian industry and the international business community.



PHDCCI

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